



Example Detention Sizing Using the Volume-Time Method

The Volume-Time method is demonstrated in the following steps. It should be noted that the following numbers are characteristic of conditions in Franklin to demonstrate the method and that the tables presented in the narrative provide data only for the critical time, hours 11 through 18 (critical time discussed later).

Step 1) Establish hydrologic parameters:

The following land use conditions, soil groups, and hydrologic parameters were assigned to the contributing area:

- The contributing area to the pond is 100 acres (typical of a medium to large development),
- Pre-development land use - 100 percent forest/open land for a total of 0.5 percent directly connected impervious area (DCIA),
- Post-development land use - 25 low density residential, 50 percent high density residential, 15 percent medium density residential and 10 percent office/institution for a total of 37.0 percent DCIA,
- Hydrologic soil Group A (30%), Group B (50%), Group C (15%), Group D (5%).
- Average area weighted flow length – 1500 ft,
- Overland slope - 0.018 ft/ft,
- Manning n for overland flow – 0.4 (PRE), 0.15 (POST)
- SCS Type II rainfall distribution with rainfall depths of 3.5 inches for 2-year, 5.2 inches for the 10-year, 6.2 inches for the 25-year, and 7.5 inches for the 100-year, 24 hour storm.

Step 2) Calculate runoff hydrographs under pre- and post-development conditions:

The development of the runoff hydrographs can be accomplished through a variety of different methods and programs. Programs that may be utilized to accomplish this task include TR-20, HEC-1, HEC-HMS, SWMM (used in this example), and others that develop peer accepted flow versus time hydrographs. In designing a pond using the Volume Time methodology, development of the runoff inflow hydrograph will not be different than any other detention design criteria.

In the City of Franklin, hour 11 through hour 18 will be utilized as the critical time for detention pond designs. The critical time is the time during which a waterway and/or location will be impacted the most during a rainfall event. During the critical hours, post-development runoff volume should be less than or equal to the pre-development runoff volume from hour 11 to hour 18 of the 24-hour design storm for the 2-, 10-, 25-, and 100-year return periods.

The 15-min interval pre- and post-development pond inflow hydrographs between hour 11 and hour 18 for the area is shown in **Table 1** and **Figure 1** for the 100-year return period event. With the

inflow information the volume over the critical time can be calculated for each 15-minute increment. Summing the volumes of each increment provides the total volume over the critical time.

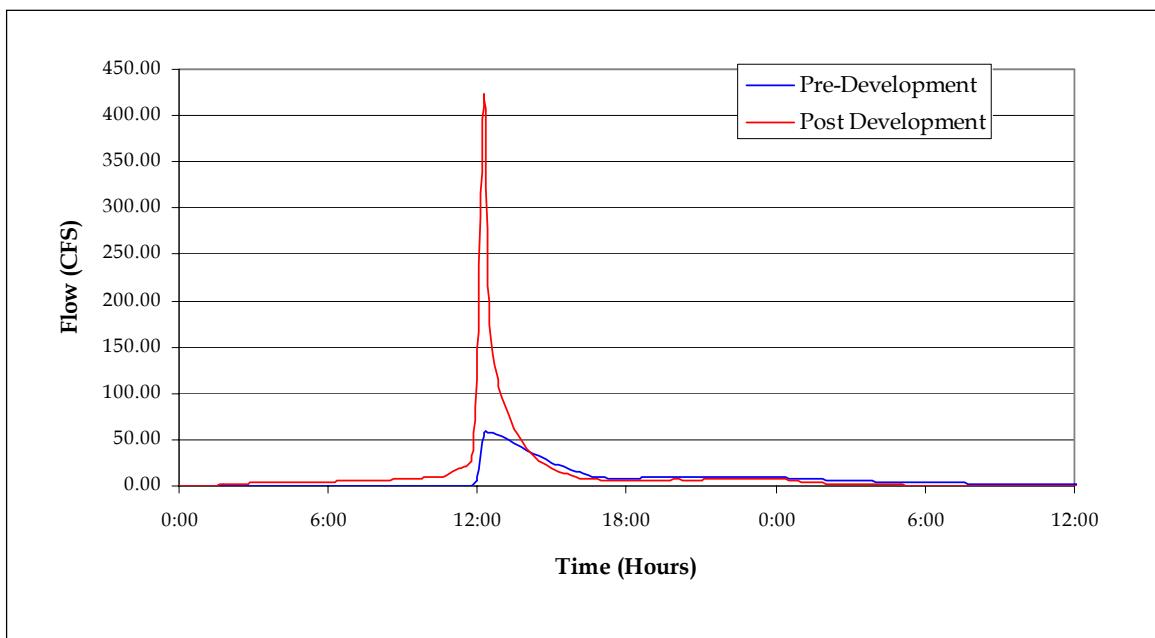
Table 1 100-Year Flows for Critical Hours with No Controls				
Time	Post-Development		Pre-Development	
	Discharge (CFS)	Volume (CF)	Discharge (CFS)	Volume (CF)
11:00	15	13569	0	203
11:15	18	16562	0	244
11:30	22	19720	0	285
11:45	27	24365	0	354
12:00	115	103221	6	5216
12:15	424	381485	57	51425
12:30	175	157451	57	51132
12:45	122	109674	55	49942
13:00	96	86116	53	47900
13:15	76	68259	50	44920
13:30	61	54950	46	41619
13:45	50	44834	43	38259
14:00	40	36420	39	34843
14:15	33	30040	35	31613
14:30	28	24836	32	28543
14:45	23	20413	28	25617
15:00	18	16565	25	22827
15:15	15	13911	23	20347
15:30	13	11961	20	18126
15:45	11	9782	18	15966
16:00	9	8299	16	14040
16:15	8	7255	14	12310
16:30	7	6532	12	10755
16:45	7	6086	10	9353
17:00	6	5424	9	7961
17:15	6	5171	7	6725
17:30	6	5049	8	6918
17:45	6	4989	8	7179
18:00	6	5007	8	7434
TOTAL VOL (CF)		1,297,945	612,054	
TOTAL VOL (AC-FT)		29.8	14.1	
PEAK DISCH. (CFS)		424	57	

Note: 100 acre area

100 year, 24-hour, Type II storm of 7.5 inches

Numerical calculations have been rounded to the nearest whole number

Figure 1
100-Year Runoff for First 36 Hours, No Controls



Step 3) Estimate the initial minimum pond storage requirement:

Calculate the difference between the pre- and post-development runoff volumes from the 100-year event between the critical hours of 11 to 18. Use 1.5 times this difference in volumes as the first estimate of the detention pond size at the 100-year peak pond depth. The estimate for this example is calculated as follows:

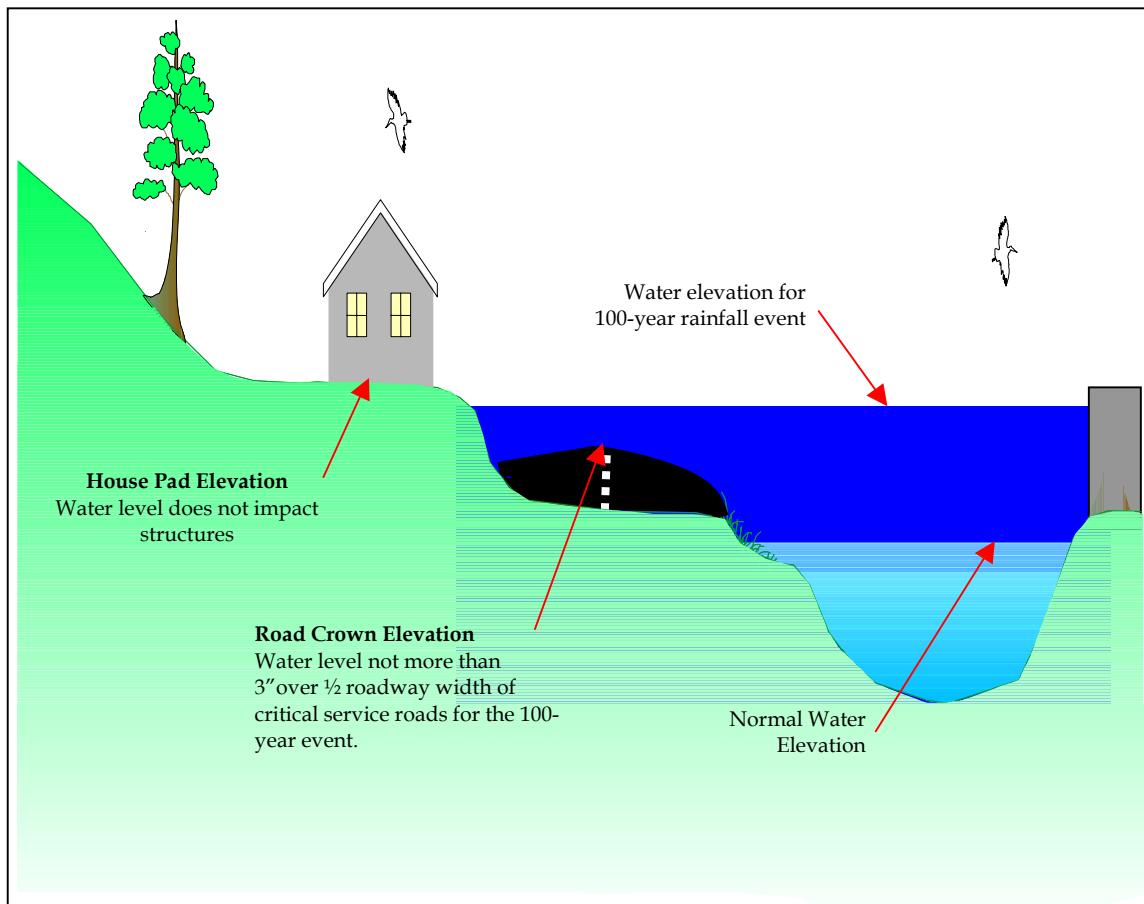
$$(29.8 - 14.1) * 1.5 = 23.55 \text{ ac-ft}$$

Step 4) Determine the allowable depth in the detention pond for the 100-year event:

The maximum water surface elevation during the 100-year, 24-hour design storm will be determined based on specific site constraints and requirements under Franklin's Stormwater Ordinance. Things to consider include:

- Maximum water surface elevation is not more than 3" over ½ the roadway width for the 100-year design storm for critical service roads per Section 6.2.8.1 of Franklin's Stormwater Ordinance (see **Figure 2**),
- Additional considerations and requirements can be referenced in Section 6 of Franklin's Stormwater Ordinance.

Figure 2



For this example, a 100-year peak pond depth of 3-feet is used. This number was selected randomly to demonstrate the Volume Time methodology. The allowable depth will vary on a case-by-case basis, depending on site constraints and design requirements.

Step 5) Determine outlet structure size and pond volume:

- Route the inflow hydrograph through the detention pond (initial volume = 23.55 ac-ft at a pond depth of 3 feet, as determined in Step 3) to generate an outflow hydrograph. This can be accomplished utilizing many different methods, generating the outflow based on the specific outlet structure used. In this example, the inflow hydrograph was routed using the EXTRAN block of SWMM, with a V-notch weir as the outlet structure. Flow through the V-Notch weir can be calculated using the following equation:

Where:

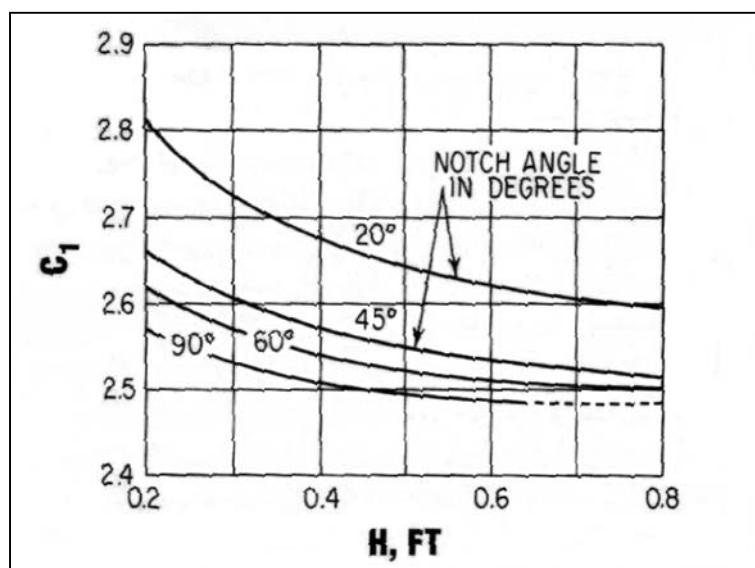
$$Q = C_1 H^{\frac{5}{2}} \tan\left(\frac{\theta}{2}\right)$$

θ = notch angle

H = head or elevation of water over the weir, ft

C_1 = discharge coefficient (see Figure 3)

Figure 3
Sharp Crested V-Notch Weir Discharge Coefficients
(From Franklin BMP Manual, Figure PTP-02-8)



For this example, the initial estimate of the V-notch angle was estimated at 111 degrees. This is done through back calculations, setting Q equal to the pre-development peak discharge rate (57 cfs) at a height of three feet. C_1 is approximated at 2.5, noting that as H increases, the graphs converge at approximately 2.5. The calculations are as follows:

$$57 = 2.5 * 3^{\frac{5}{2}} \tan\left(\frac{\theta}{2}\right)$$

Solving for θ , the initial angle of the V-notch weir equals 111 degrees.

2. Based on the calculated outflow, the maximum height at the peak stage must be determined. This can be calculated as flow is routed through the pond for each time increment and is dependent on the routing method and outlet structure used. For this example, peak stages were verified through model output.
3. Vary the pond size and outlet structure size until the Volume-Time criteria are met for the 100-year event. For this example, the following goals have been established:

Goals:

Pond Depth \leq 3 feet (for this example only)

Critical outflow volume \leq 14.1 ac-ft (for this example only)

100-year peak discharge \leq 57 cfs (for this example only)



Figure 4 – V-notch outlet structures are recommended because they offer a wide range of control for large, medium, and small storms, and they are used in this example.

The iterations for successive pond sizes and outlet capacities are summarized in **Table 2** for the 100-year, 24-hour design storm. Full data sets for the iterations, including the discharge hydrograph are included in **Appendix A**.

Table 2
Iterations for Pond Sizes and Outlet Capacities, 100-Year, 24-Hour Design Storm

Iteration (Model ID)	Volume at 3-ft (ac-ft)	V-Notch Weir Angle (degrees)	Calculated Peak Depth (ft)	Pond Outflow Volume Over Critical Hours (ac-ft)	Peak Outflow (cfs)	Comments
VTFE0001	23.55	111	2.9	18.0	52.4	Outflow volume too large with more allowable depth available. Decrease weir angle.
VTFE0002	23.55	90	3.1	15.4	41.8	Outflow volume too large, pond too deep. Increase volume by $[1.5 * (15.4 - 14.1) = 1.95 \text{ ac-ft}]$.
VTFE0003	25.5	85	3.0	13.4	35.0	Pond and structure meet criteria for 100-year, 24-hour design storm.

Step 6) Route the 2-, 10-, and 25-year post-development hydrographs through the detention pond.

Route the 2-, 10-, 25-year, 24-hour design storms through the pond and critical outlet structure. Adjust the outlet structure for lower flow control as shown in Step 5 if the post-development volume during the critical time period and/or peak discharge is greater than the pre-development volume during the critical time period and/or peak discharge.

Model output for the verifications of the 2-, 10-, and 25-year design storms are presented in **Appendix B**. Pre- and post-development flows for the 2-, 10-, 25-, and 100-year design storms with no controls over the critical time, including volumes and peak discharges, are presented in **Appendix C**.

The verification of volume and peak discharge for the 2-year design storm revealed that the post-development conditions did not meet the pre-development conditions. Returning to Step 5, the outlet structure was modified to meet the criteria for the 2-year event. **Table 3** presents the iterations for successive pond sizes and outlet capacities for the 2-year, 24-hour design storm.

Table 3
Iterations for Pond Sizes and Outlet Capacities, 2-Year, 24-Hour Design Storm

Iteration (Model ID)	Volume at 3-ft (ac-ft)	V-Notch Weir Angle (degrees)	Calculated Peak Depth (ft)	Pond Outflow Volume Over Critical Hours (ac-ft)	Peak Outflow (cfs)	Comments
VTFE0201	25.5	85	1.0	1.0	2.4	Outflow volume too large with more allowable depth available. Decrease weir angle.
VTFE0202	25.5	25	1.2	0.3	0.8	Pond and structure meet criteria for 2-year, 24-hour design storm.

To accommodate the flows for the larger design storms, a second weir was added at an invert elevation of 1.2 feet (At peak stage of 2-year design storm). The iterations for the new outlet structure for the 100-year event are presented in **Table 4**.

Table 4 Iterations for Pond Sizes and Outlet Capacities, 100-Year, 24-Hour Design Storm						
Iteration (Model ID)	Volume at 3-ft (ac-ft)	V-Notch Weir Angle (degrees)	Calculated Peak Depth (ft)	Pond Outflow Volume Over Critical Hours (ac-ft)	Peak Outflow (cfs)	Comments
VTFE0004	25.5	Weir 1: 25 Weir 2: 140	3.0	13.1	38.3	Pond and structure meet criteria for 100-year, 24-hour design storm.

Calculations for the 2-year, 10-year, and 25-year design storms were performed based on the new structure. Since the post development volumes over the critical time and the peak discharges are less than the pre-development conditions, no further adjustment is necessary. The pre- and post-development (with controls) peak discharges and volumes are presented in **Table 5**.

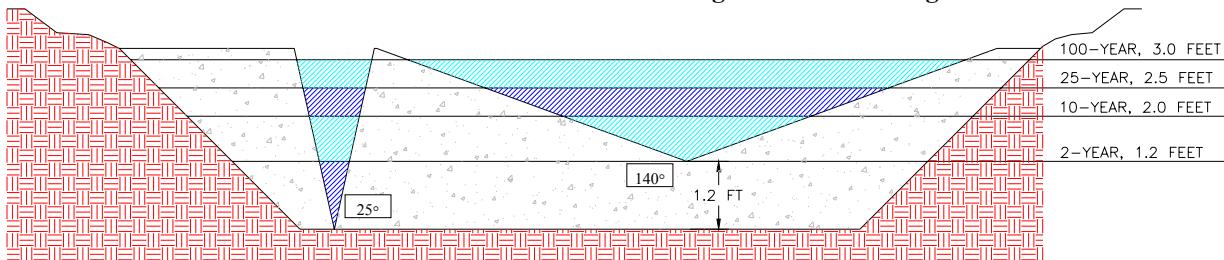
Table 5 2-Year, 10-Year and 25-Year Critical Outflow Volumes and Peak Flows			
2-Year Storm			
Critical Pre-Development Outflow Volume (ac-ft)	Critical Volume-Controlled Post-Development Outflow Volume (ac-ft)	Pre-Development Peak Flow (cfs)	Volume-Controlled Post- Development Peak Flow (cfs)
0.3	0.3	5	0.8
10-Year Storm			
Critical Pre-Development Outflow Volume (ac-ft)	Critical Volume-Controlled Post-Development Outflow Volume (ac-ft)	Pre-Development Peak Flow (cfs)	Volume-Controlled Post- Development Peak Flow (cfs)
4.3	3.0	22	7.7
25-Year Storm			
Critical Pre-Development Outflow Volume (ac-ft)	Critical Volume-Controlled Post-Development Outflow Volume (ac-ft)	Pre-Development Peak Flow (cfs)	Volume-Controlled Post- Development Peak Flow (cfs)
8	6.5	35	17.8

The final 100-year pond volume and 100-year pond surface area for the example to meet the volume-time criteria are presented in **Table 6** with a schematic of the outlet structure in **Figure 5**.

Table 6
Pond Size and Outlet Capacity to Meet Volume-Time Criteria

Pond Volume at 3-ft Depth (ac-ft)	Pond Surface Area at 3-ft Depth (ac)	V-Notch Weir Angle (degrees)	Percent of Land Area
25.5	8.8	Weir 1: 25 @ 0.01 ft Elev. Weir 2: 140 @ 1.2 ft Elev.	8.8%

Figure 5
Outlet Structure Schematic and Design Storm Peak Stages





Appendix A

Iterations to Achieve Volume-Time Criteria

ITERATIONS TO ACHIEVE VOLUME-TIME CRITERIA
CRITICAL TIME

	RUN	UNITS	GOALS	UNITS		RUN	UNITS	GOALS	UNITS
MODEL	VTFE0001	NA	NA	NA	MODEL	VTFE0002	NA	NA	NA
POND VOL @ 8 FT	23.55	AC-FT	NA	NA	POND VOL @ 3 FT	23.55	AC-FT	NA	NA
WEIR 1 ANGLE	111.0	DEGREES	NA	NA	WEIR 1 ANGLE	90.0	DEGREES	NA	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0.0	FT	NA	NA
WEIR 2 ANGLE	0.0	DEGREES	NA	NA	WEIR 2 ANGLE	0.0	DEGREES	NA	NA
WEIR 2 HEIGHT	0.0	FT	NA	NA	WEIR 2 HEIGHT	0.0	FT	NA	NA
VOL. CRIT. TIME	18.0	AC-FT	14.1	AC-FT	VOL. CRIT. TIME	15.4	AC-FT	14.1	AC-FT
PEAK FLOW	52.4	CFS	57	CFS	PEAK FLOW	41.8	CFS	57	CFS
ROUTED DEPTH	2.9	FT	3.0	FT	ROUTED DEPTH	3.1	FT	3.0	FT
	DISCHARGE FROM WEIR 1	DISCHARGE FROM WEIR 2	DURATION OF DISCHARGE	VOLUME DISCHARGE		DISCHARGE FROM WEIR 1	DISCHARGE FROM WEIR 2	DURATION OF DISCHARGE	VOLUME DISCHARGE
TIME	(CFS)	(CFS)	(MIN)	(CF)	TIME	(CFS)	(CFS)	(MIN)	(CF)
0:00:00	0.00	0.00	0	0	0:00:00	0.00	0.00	0	0
0:05:00	0.00	0.00	5	0	0:05:00	0.00	0.00	5	0
0:10:00	0.00	0.00	5	0	0:10:00	0.00	0.00	5	0
0:15:00	0.00	0.00	5	0	0:15:00	0.00	0.00	5	0
0:20:00	0.00	0.00	5	0	0:20:00	0.00	0.00	5	0
0:25:00	0.00	0.00	5	0	0:25:00	0.00	0.00	5	0
0:30:00	0.00	0.00	5	0	0:30:00	0.00	0.00	5	0
0:35:00	0.00	0.00	5	0	0:35:00	0.00	0.00	5	0
0:40:00	0.00	0.00	5	0	0:40:00	0.00	0.00	5	0
0:45:00	0.00	0.00	5	0	0:45:00	0.00	0.00	5	0
0:50:00	0.00	0.00	5	0	0:50:00	0.00	0.00	5	0
0:55:00	0.00	0.00	5	0	0:55:00	0.00	0.00	5	0
1:00:00	0.00	0.00	5	0	1:00:00	0.00	0.00	5	0
1:05:00	0.00	0.00	5	0	1:05:00	0.00	0.00	5	0
1:10:00	0.00	0.00	5	0	1:10:00	0.00	0.00	5	0
1:15:00	0.00	0.00	5	0	1:15:00	0.00	0.00	5	0
1:20:00	0.00	0.00	5	0	1:20:00	0.00	0.00	5	0
1:25:00	0.00	0.00	5	0	1:25:00	0.00	0.00	5	0
1:30:00	0.00	0.00	5	0	1:30:00	0.00	0.00	5	0
1:35:00	0.00	0.00	5	0	1:35:00	0.00	0.00	5	0
1:40:00	0.00	0.00	5	0	1:40:00	0.00	0.00	5	0
1:45:00	0.00	0.00	5	0	1:45:00	0.00	0.00	5	0
1:50:00	0.00	0.00	5	0	1:50:00	0.00	0.00	5	0
1:55:00	0.00	0.00	5	0	1:55:00	0.00	0.00	5	0
2:00:00	0.00	0.00	5	0	2:00:00	0.00	0.00	5	0
2:05:00	0.00	0.00	5	0	2:05:00	0.00	0.00	5	0
2:10:00	0.00	0.00	5	0	2:10:00	0.00	0.00	5	0
2:15:00	0.00	0.00	5	0	2:15:00	0.00	0.00	5	0
2:20:00	0.00	0.00	5	0	2:20:00	0.00	0.00	5	0
2:25:00	0.00	0.00	5	0	2:25:00	0.00	0.00	5	0
2:30:00	0.00	0.00	5	0	2:30:00	0.00	0.00	5	0
2:35:00	0.00	0.00	5	0	2:35:00	0.00	0.00	5	0
2:40:00	0.00	0.00	5	0	2:40:00	0.00	0.00	5	0
2:45:00	0.00	0.00	5	0	2:45:00	0.00	0.00	5	0
2:50:00	0.00	0.00	5	0	2:50:00	0.00	0.00	5	0
2:55:00	0.00	0.00	5	0	2:55:00	0.00	0.00	5	0
3:00:00	0.00	0.00	5	0	3:00:00	0.00	0.00	5	0
3:05:00	0.00	0.00	5	0	3:05:00	0.00	0.00	5	0
3:10:00	0.00	0.00	5	0	3:10:00	0.00	0.00	5	0
3:15:00	0.00	0.00	5	1	3:15:00	0.00	0.00	5	0
3:20:00	0.00	0.00	5	1	3:20:00	0.00	0.00	5	0
3:25:00	0.00	0.00	5	1	3:25:00	0.00	0.00	5	1
3:30:00	0.00	0.00	5	1	3:30:00	0.00	0.00	5	1
3:35:00	0.00	0.00	5	1	3:35:00	0.00	0.00	5	1
3:40:00	0.00	0.00	5	1	3:40:00	0.00	0.00	5	1
3:45:00	0.00	0.00	5	1	3:45:00	0.00	0.00	5	1
3:50:00	0.00	0.00	5	1	3:50:00	0.00	0.00	5	1
3:55:00	0.01	0.00	5	2	3:55:00	0.00	0.00	5	1
4:00:00	0.01	0.00	5	2	4:00:00	0.00	0.00	5	1
4:05:00	0.01	0.00	5	2	4:05:00	0.00	0.00	5	1
4:10:00	0.01	0.00	5	2	4:10:00	0.00	0.00	5	1
4:15:00	0.01	0.00	5	2	4:15:00	0.01	0.00	5	2
4:20:00	0.01	0.00	5	2	4:20:00	0.01	0.00	5	2

ITERATIONS TO ACHIEVE VOLUME-TIME CRITERIA
CRITICAL TIME

	RUN	UNITS	GOALS	UNITS		RUN	UNITS	GOALS	UNITS
MODEL	VTFE0001	NA	NA	NA	MODEL	VTFE0002	NA	NA	NA
POND VOL @ 8 FT	23.55	AC-FT	NA	NA	POND VOL @ 3 FT	23.55	AC-FT	NA	NA
WEIR 1 ANGLE	111.0	DEGREES	NA	NA	WEIR 1 ANGLE	90.0	DEGREES	NA	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0.0	FT	NA	NA
WEIR 2 ANGLE	0.0	DEGREES	NA	NA	WEIR 2 ANGLE	0.0	DEGREES	NA	NA
WEIR 2 HEIGHT	0.0	FT	NA	NA	WEIR 2 HEIGHT	0.0	FT	NA	NA
VOL. CRIT. TIME	18.0	AC-FT	14.1	AC-FT	VOL. CRIT. TIME	15.4	AC-FT	14.1	AC-FT
PEAK FLOW	52.4	CFS	57	CFS	PEAK FLOW	41.8	CFS	57	CFS
ROUTED DEPTH	2.9	FT	3.0	FT	ROUTED DEPTH	3.1	FT	3.0	FT
	DURATION					DURATION			
	DISCHARGE FROM WEIR 1	DISCHARGE FROM WEIR 2	OF DISCHARGE	VOLUME DISCHARGE		DISCHARGE FROM WEIR 1	DISCHARGE FROM WEIR 2	OF DISCHARGE	VOLUME DISCHARGE
TIME	(CFS)	(CFS)	(MIN)	(CF)	TIME	(CFS)	(CFS)	(MIN)	(CF)
4:25:00	0.01	0.00	5	2	4:25:00	0.01	0.00	5	2
4:30:00	0.01	0.00	5	3	4:30:00	0.01	0.00	5	2
4:35:00	0.01	0.00	5	3	4:35:00	0.01	0.00	5	2
4:40:00	0.01	0.00	5	3	4:40:00	0.01	0.00	5	2
4:45:00	0.01	0.00	5	4	4:45:00	0.01	0.00	5	2
4:50:00	0.01	0.00	5	4	4:50:00	0.01	0.00	5	3
4:55:00	0.02	0.00	5	5	4:55:00	0.01	0.00	5	3
5:00:00	0.02	0.00	5	5	5:00:00	0.01	0.00	5	3
5:05:00	0.02	0.00	5	5	5:05:00	0.01	0.00	5	4
5:10:00	0.02	0.00	5	6	5:10:00	0.01	0.00	5	4
5:15:00	0.02	0.00	5	6	5:15:00	0.01	0.00	5	4
5:20:00	0.02	0.00	5	7	5:20:00	0.02	0.00	5	5
5:25:00	0.02	0.00	5	7	5:25:00	0.02	0.00	5	5
5:30:00	0.03	0.00	5	8	5:30:00	0.02	0.00	5	5
5:35:00	0.03	0.00	5	8	5:35:00	0.02	0.00	5	6
5:40:00	0.03	0.00	5	9	5:40:00	0.02	0.00	5	6
5:45:00	0.03	0.00	5	9	5:45:00	0.02	0.00	5	6
5:50:00	0.03	0.00	5	10	5:50:00	0.02	0.00	5	7
5:55:00	0.04	0.00	5	11	5:55:00	0.02	0.00	5	7
6:00:00	0.04	0.00	5	11	6:00:00	0.03	0.00	5	8
6:05:00	0.04	0.00	5	12	6:05:00	0.03	0.00	5	8
6:10:00	0.04	0.00	5	13	6:10:00	0.03	0.00	5	9
6:15:00	0.04	0.00	5	13	6:15:00	0.03	0.00	5	9
6:20:00	0.05	0.00	5	14	6:20:00	0.03	0.00	5	10
6:25:00	0.05	0.00	5	15	6:25:00	0.03	0.00	5	10
6:30:00	0.05	0.00	5	16	6:30:00	0.04	0.00	5	11
6:35:00	0.06	0.00	5	17	6:35:00	0.04	0.00	5	12
6:40:00	0.06	0.00	5	18	6:40:00	0.04	0.00	5	12
6:45:00	0.06	0.00	5	19	6:45:00	0.04	0.00	5	13
6:50:00	0.07	0.00	5	20	6:50:00	0.05	0.00	5	14
6:55:00	0.07	0.00	5	21	6:55:00	0.05	0.00	5	15
7:00:00	0.08	0.00	5	23	7:00:00	0.05	0.00	5	16
7:05:00	0.08	0.00	5	24	7:05:00	0.06	0.00	5	17
7:10:00	0.08	0.00	5	25	7:10:00	0.06	0.00	5	17
7:15:00	0.09	0.00	5	26	7:15:00	0.06	0.00	5	18
7:20:00	0.09	0.00	5	28	7:20:00	0.06	0.00	5	19
7:25:00	0.10	0.00	5	29	7:25:00	0.07	0.00	5	20
7:30:00	0.10	0.00	5	31	7:30:00	0.07	0.00	5	21
7:35:00	0.11	0.00	5	32	7:35:00	0.08	0.00	5	23
7:40:00	0.11	0.00	5	34	7:40:00	0.08	0.00	5	23
7:45:00	0.12	0.00	5	36	7:45:00	0.08	0.00	5	25
7:50:00	0.13	0.00	5	38	7:50:00	0.09	0.00	5	26
7:55:00	0.13	0.00	5	39	7:55:00	0.09	0.00	5	27
8:00:00	0.14	0.00	5	41	8:00:00	0.10	0.00	5	29
8:05:00	0.14	0.00	5	43	8:05:00	0.10	0.00	5	30
8:10:00	0.15	0.00	5	45	8:10:00	0.10	0.00	5	31
8:15:00	0.16	0.00	5	47	8:15:00	0.11	0.00	5	32
8:20:00	0.16	0.00	5	49	8:20:00	0.11	0.00	5	34
8:25:00	0.17	0.00	5	51	8:25:00	0.12	0.00	5	35
8:30:00	0.18	0.00	5	53	8:30:00	0.12	0.00	5	37
8:35:00	0.19	0.00	5	56	8:35:00	0.13	0.00	5	39
8:40:00	0.19	0.00	5	58	8:40:00	0.14	0.00	5	41
8:45:00	0.20	0.00	5	61	8:45:00	0.14	0.00	5	42

ITERATIONS TO ACHIEVE VOLUME-TIME CRITERIA
CRITICAL TIME

	RUN	UNITS	GOALS	UNITS		RUN	UNITS	GOALS	UNITS
MODEL	VTFE0001	NA	NA	NA	MODEL	VTFE0002	NA	NA	NA
POND VOL @ 8 FT	23.55	AC-FT	NA	NA	POND VOL @ 3 FT	23.55	AC-FT	NA	NA
WEIR 1 ANGLE	111.0	DEGREES	NA	NA	WEIR 1 ANGLE	90.0	DEGREES	NA	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0.0	FT	NA	NA
WEIR 2 ANGLE	0.0	DEGREES	NA	NA	WEIR 2 ANGLE	0.0	DEGREES	NA	NA
WEIR 2 HEIGHT	0.0	FT	NA	NA	WEIR 2 HEIGHT	0.0	FT	NA	NA
VOL. CRIT. TIME	18.0	AC-FT	14.1	AC-FT	VOL. CRIT. TIME	15.4	AC-FT	14.1	AC-FT
PEAK FLOW	52.4	CFS	57	CFS	PEAK FLOW	41.8	CFS	57	CFS
ROUTED DEPTH	2.9	FT	3.0	FT	ROUTED DEPTH	3.1	FT	3.0	FT
8:50:00	0.21	0.00	5	64	8:50:00	0.15	0.00	5	44
8:55:00	0.22	0.00	5	67	8:55:00	0.16	0.00	5	47
9:00:00	0.24	0.00	5	71	9:00:00	0.16	0.00	5	49
9:05:00	0.25	0.00	5	74	9:05:00	0.17	0.00	5	51
9:10:00	0.26	0.00	5	78	9:10:00	0.18	0.00	5	54
9:15:00	0.27	0.00	5	81	9:15:00	0.19	0.00	5	56
9:20:00	0.28	0.00	5	85	9:20:00	0.20	0.00	5	59
9:25:00	0.30	0.00	5	89	9:25:00	0.21	0.00	5	62
9:30:00	0.31	0.00	5	94	9:30:00	0.22	0.00	5	65
9:35:00	0.33	0.00	5	98	9:35:00	0.23	0.00	5	68
9:40:00	0.34	0.00	5	103	9:40:00	0.24	0.00	5	72
9:45:00	0.36	0.00	5	108	9:45:00	0.25	0.00	5	75
9:50:00	0.38	0.00	5	113	9:50:00	0.26	0.00	5	79
9:55:00	0.40	0.00	5	119	9:55:00	0.28	0.00	5	83
10:00:00	0.42	0.00	5	125	10:00:00	0.29	0.00	5	87
10:05:00	0.44	0.00	5	131	10:05:00	0.30	0.00	5	91
10:10:00	0.46	0.00	5	137	10:10:00	0.32	0.00	5	95
10:15:00	0.48	0.00	5	143	10:15:00	0.33	0.00	5	100
10:20:00	0.50	0.00	5	150	10:20:00	0.35	0.00	5	105
10:25:00	0.53	0.00	5	158	10:25:00	0.37	0.00	5	110
10:30:00	0.55	0.00	5	165	10:30:00	0.39	0.00	5	116
10:35:00	0.58	0.00	5	173	10:35:00	0.40	0.00	5	121
10:40:00	0.61	0.00	5	182	10:40:00	0.43	0.00	5	128
10:45:00	0.64	0.00	5	192	10:45:00	0.45	0.00	5	134
10:50:00	0.68	0.00	5	203	10:50:00	0.47	0.00	5	142
10:55:00	0.72	0.00	5	215	10:55:00	0.50	0.00	5	150
11:00:00	0.76	0.00	5	227	11:00:00	0.53	0.00	5	159
11:05:00	0.81	0.00	5	242	11:05:00	0.57	0.00	5	170
11:10:00	0.86	0.00	5	258	11:10:00	0.60	0.00	5	181
11:15:00	0.92	0.00	5	276	11:15:00	0.65	0.00	5	194
11:20:00	0.99	0.00	5	296	11:20:00	0.69	0.00	5	207
11:25:00	1.06	0.00	5	317	11:25:00	0.74	0.00	5	223
11:30:00	1.14	0.00	5	341	11:30:00	0.80	0.00	5	240
11:35:00	1.23	0.00	5	368	11:35:00	0.86	0.00	5	259
11:40:00	1.33	0.00	5	398	11:40:00	0.93	0.00	5	280
11:45:00	1.44	0.00	5	432	11:45:00	1.01	0.00	5	304
11:50:00	1.64	0.00	5	491	11:50:00	1.15	0.00	5	345
11:55:00	2.00	0.00	5	601	11:55:00	1.41	0.00	5	423
12:00:00	2.60	0.00	5	781	12:00:00	1.83	0.00	5	549
12:05:00	3.82	0.00	5	1145	12:05:00	2.68	0.00	5	804
12:10:00	6.39	0.00	5	1917	12:10:00	4.48	0.00	5	1344
12:15:00	11.27	0.00	5	3381	12:15:00	7.90	0.00	5	2369
12:20:00	17.93	0.00	5	5380	12:20:00	12.59	0.00	5	3776
12:25:00	24.20	0.00	5	7260	12:25:00	17.05	0.00	5	5115
12:30:00	29.11	0.00	5	8732	12:30:00	20.62	0.00	5	6185
12:35:00	32.92	0.00	5	9876	12:35:00	23.47	0.00	5	7041
12:40:00	36.35	0.00	5	10904	12:40:00	26.09	0.00	5	7826
12:45:00	39.29	0.00	5	11786	12:45:00	28.40	0.00	5	8520
12:50:00	41.82	0.00	5	12547	12:50:00	30.46	0.00	5	9138
12:55:00	44.07	0.00	5	13220	12:55:00	32.34	0.00	5	9701
13:00:00	45.99	0.00	5	13798	13:00:00	34.01	0.00	5	10204
13:05:00	47.63	0.00	5	14288	13:05:00	35.50	0.00	5	10649
13:10:00	48.99	0.00	5	14697	13:10:00	36.80	0.00	5	11040

ITERATIONS TO ACHIEVE VOLUME-TIME CRITERIA
CRITICAL TIME

	RUN	UNITS	GOALS	UNITS		RUN	UNITS	GOALS	UNITS
MODEL	VTFE0001	NA	NA	NA	MODEL	VTFE0002	NA	NA	NA
POND VOL @ 8 FT	23.55	AC-FT	NA	NA	POND VOL @ 3 FT	23.55	AC-FT	NA	NA
WEIR 1 ANGLE	111.0	DEGREES	NA	NA	WEIR 1 ANGLE	90.0	DEGREES	NA	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0.0	FT	NA	NA
WEIR 2 ANGLE	0.0	DEGREES	NA	NA	WEIR 2 ANGLE	0.0	DEGREES	NA	NA
WEIR 2 HEIGHT	0.0	FT	NA	NA	WEIR 2 HEIGHT	0.0	FT	NA	NA
VOL. CRIT. TIME	18.0	AC-FT	14.1	AC-FT	VOL. CRIT. TIME	15.4	AC-FT	14.1	AC-FT
PEAK FLOW	52.4	CFS	57	CFS	PEAK FLOW	41.8	CFS	57	CFS
ROUTED DEPTH	2.9	FT	3.0	FT	ROUTED DEPTH	3.1	FT	3.0	FT
13:15:00	50.09	0.00	5	15026	13:15:00	37.92	0.00	5	11376
13:20:00	50.94	0.00	5	15282	13:20:00	38.87	0.00	5	11662
13:25:00	51.59	0.00	5	15477	13:25:00	39.68	0.00	5	11904
13:30:00	52.03	0.00	5	15610	13:30:00	40.33	0.00	5	12100
13:35:00	52.30	0.00	5	15690	13:35:00	40.86	0.00	5	12257
13:40:00	52.42	0.00	5	15725	13:40:00	41.26	0.00	5	12379
13:45:00	52.39	0.00	5	15717	13:45:00	41.56	0.00	5	12467
13:50:00	52.24	0.00	5	15671	13:50:00	41.75	0.00	5	12524
13:55:00	51.97	0.00	5	15591	13:55:00	41.84	0.00	5	12552
14:00:00	51.60	0.00	5	15480	14:00:00	41.85	0.00	5	12554
14:05:00	51.15	0.00	5	15344	14:05:00	41.77	0.00	5	12532
14:10:00	50.62	0.00	5	15186	14:10:00	41.64	0.00	5	12491
14:15:00	50.03	0.00	5	15010	14:15:00	41.44	0.00	5	12431
14:20:00	49.39	0.00	5	14817	14:20:00	41.19	0.00	5	12356
14:25:00	48.71	0.00	5	14612	14:25:00	40.89	0.00	5	12266
14:30:00	47.99	0.00	5	14396	14:30:00	40.55	0.00	5	12164
14:35:00	47.23	0.00	5	14170	14:35:00	40.17	0.00	5	12050
14:40:00	46.46	0.00	5	13937	14:40:00	39.75	0.00	5	11926
14:45:00	45.66	0.00	5	13697	14:45:00	39.31	0.00	5	11792
14:50:00	44.84	0.00	5	13452	14:50:00	38.84	0.00	5	11651
14:55:00	44.01	0.00	5	13203	14:55:00	38.35	0.00	5	11504
15:00:00	43.17	0.00	5	12950	15:00:00	37.83	0.00	5	11349
15:05:00	42.32	0.00	5	12697	15:05:00	37.30	0.00	5	11191
15:10:00	41.49	0.00	5	12446	15:10:00	36.77	0.00	5	11030
15:15:00	40.65	0.00	5	12195	15:15:00	36.22	0.00	5	10867
15:20:00	39.83	0.00	5	11948	15:20:00	35.68	0.00	5	10703
15:25:00	39.01	0.00	5	11704	15:25:00	35.13	0.00	5	10539
15:30:00	38.21	0.00	5	11464	15:30:00	34.58	0.00	5	10375
15:35:00	37.42	0.00	5	11227	15:35:00	34.04	0.00	5	10211
15:40:00	36.64	0.00	5	10993	15:40:00	33.49	0.00	5	10046
15:45:00	35.87	0.00	5	10761	15:45:00	32.94	0.00	5	9881
15:50:00	35.11	0.00	5	10533	15:50:00	32.39	0.00	5	9717
15:55:00	34.37	0.00	5	10310	15:55:00	31.85	0.00	5	9554
16:00:00	33.64	0.00	5	10091	16:00:00	31.31	0.00	5	9393
16:05:00	32.92	0.00	5	9877	16:05:00	30.78	0.00	5	9234
16:10:00	32.23	0.00	5	9668	16:10:00	30.26	0.00	5	9077
16:15:00	31.55	0.00	5	9465	16:15:00	29.74	0.00	5	8923
16:20:00	30.89	0.00	5	9267	16:20:00	29.24	0.00	5	8771
16:25:00	30.25	0.00	5	9074	16:25:00	28.74	0.00	5	8623
16:30:00	29.62	0.00	5	8887	16:30:00	28.26	0.00	5	8478
16:35:00	29.02	0.00	5	8705	16:35:00	27.79	0.00	5	8336
16:40:00	28.43	0.00	5	8529	16:40:00	27.32	0.00	5	8197
16:45:00	27.86	0.00	5	8359	16:45:00	26.87	0.00	5	8061
16:50:00	27.31	0.00	5	8193	16:50:00	26.43	0.00	5	7929
16:55:00	26.77	0.00	5	8031	16:55:00	26.00	0.00	5	7799
17:00:00	26.25	0.00	5	7874	17:00:00	25.57	0.00	5	7671
17:05:00	25.74	0.00	5	7721	17:05:00	25.15	0.00	5	7546
17:10:00	25.24	0.00	5	7572	17:10:00	24.75	0.00	5	7425
17:15:00	24.76	0.00	5	7429	17:15:00	24.35	0.00	5	7306
17:20:00	24.30	0.00	5	7289	17:20:00	23.97	0.00	5	7191
17:25:00	23.85	0.00	5	7155	17:25:00	23.60	0.00	5	7079
17:30:00	23.42	0.00	5	7025	17:30:00	23.23	0.00	5	6969
17:35:00	22.99	0.00	5	6898	17:35:00	22.88	0.00	5	6863

ITERATIONS TO ACHIEVE VOLUME-TIME CRITERIA
CRITICAL TIME

	RUN	UNITS	GOALS	UNITS		RUN	UNITS	GOALS	UNITS
MODEL	VTFE0001	NA	NA	NA	MODEL	VTFE0002	NA	NA	NA
POND VOL @ 8 FT	23.55	AC-FT	NA	NA	POND VOL @ 3 FT	23.55	AC-FT	NA	NA
WEIR 1 ANGLE	111.0	DEGREES	NA	NA	WEIR 1 ANGLE	90.0	DEGREES	NA	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0.0	FT	NA	NA
WEIR 2 ANGLE	0.0	DEGREES	NA	NA	WEIR 2 ANGLE	0.0	DEGREES	NA	NA
WEIR 2 HEIGHT	0.0	FT	NA	NA	WEIR 2 HEIGHT	0.0	FT	NA	NA
VOL. CRIT. TIME	18.0	AC-FT	14.1	AC-FT	VOL. CRIT. TIME	15.4	AC-FT	14.1	AC-FT
PEAK FLOW	52.4	CFS	57	CFS	PEAK FLOW	41.8	CFS	57	CFS
ROUTED DEPTH	2.9	FT	3.0	FT	ROUTED DEPTH	3.1	FT	3.0	FT
TIME	DISCHARGE FROM WEIR 1 (CFS)	DISCHARGE FROM WEIR 2 (CFS)	DURATION OF DISCHARGE (MIN)	VOLUME DISCHARGE (CF)	TIME	DISCHARGE FROM WEIR 1 (CFS)	DISCHARGE FROM WEIR 2 (CFS)	DURATION OF DISCHARGE (MIN)	VOLUME DISCHARGE (CF)
17:40:00	22.59	0.00	5	6776	17:40:00	22.53	0.00	5	6759
17:45:00	22.19	0.00	5	6658	17:45:00	22.20	0.00	5	6659
17:50:00	21.81	0.00	5	6544	17:50:00	21.87	0.00	5	6561
17:55:00	21.44	0.00	5	6433	17:55:00	21.55	0.00	5	6466
18:00:00	21.09	0.00	5	6326	18:00:00	21.24	0.00	5	6373
18:05:00	20.74	0.00	5	6222	18:05:00	20.94	0.00	5	6283
18:10:00	20.40	0.00	5	6121	18:10:00	20.65	0.00	5	6194
18:15:00	20.07	0.00	5	6021	18:15:00	20.36	0.00	5	6107
18:20:00	19.75	0.00	5	5924	18:20:00	20.07	0.00	5	6022
18:25:00	19.43	0.00	5	5830	18:25:00	19.80	0.00	5	5939
18:30:00	19.13	0.00	5	5739	18:30:00	19.53	0.00	5	5858
18:35:00	18.84	0.00	5	5651	18:35:00	19.26	0.00	5	5779
18:40:00	18.55	0.00	5	5565	18:40:00	19.01	0.00	5	5702
18:45:00	18.27	0.00	5	5482	18:45:00	18.76	0.00	5	5628
18:50:00	18.01	0.00	5	5402	18:50:00	18.52	0.00	5	5556
18:55:00	17.75	0.00	5	5325	18:55:00	18.29	0.00	5	5486
19:00:00	17.50	0.00	5	5250	19:00:00	18.06	0.00	5	5418
19:05:00	17.26	0.00	5	5178	19:05:00	17.84	0.00	5	5353
19:10:00	17.03	0.00	5	5109	19:10:00	17.63	0.00	5	5289
19:15:00	16.81	0.00	5	5042	19:15:00	17.43	0.00	5	5228
19:20:00	16.59	0.00	5	4978	19:20:00	17.23	0.00	5	5168
19:25:00	16.39	0.00	5	4916	19:25:00	17.04	0.00	5	5111
19:30:00	16.19	0.00	5	4856	19:30:00	16.85	0.00	5	5055
19:35:00	16.00	0.00	5	4799	19:35:00	16.67	0.00	5	5002
19:40:00	15.81	0.00	5	4744	19:40:00	16.50	0.00	5	4950
19:45:00	15.63	0.00	5	4690	19:45:00	16.33	0.00	5	4900
19:50:00	15.46	0.00	5	4639	19:50:00	16.17	0.00	5	4851
19:55:00	15.30	0.00	5	4590	19:55:00	16.02	0.00	5	4805
20:00:00	15.14	0.00	5	4542	20:00:00	15.86	0.00	5	4759
20:05:00	14.99	0.00	5	4496	20:05:00	15.72	0.00	5	4715
20:10:00	14.84	0.00	5	4451	20:10:00	15.57	0.00	5	4672
20:15:00	14.69	0.00	5	4406	20:15:00	15.43	0.00	5	4628
20:20:00	14.54	0.00	5	4361	20:20:00	15.29	0.00	5	4586
20:25:00	14.39	0.00	5	4318	20:25:00	15.15	0.00	5	4544
20:30:00	14.25	0.00	5	4275	20:30:00	15.01	0.00	5	4503
20:35:00	14.11	0.00	5	4234	20:35:00	14.88	0.00	5	4463
20:40:00	13.98	0.00	5	4193	20:40:00	14.75	0.00	5	4424
20:45:00	13.85	0.00	5	4154	20:45:00	14.62	0.00	5	4385
20:50:00	13.72	0.00	5	4116	20:50:00	14.49	0.00	5	4348
20:55:00	13.59	0.00	5	4078	20:55:00	14.37	0.00	5	4311
21:00:00	13.47	0.00	5	4042	21:00:00	14.25	0.00	5	4275
21:05:00	13.36	0.00	5	4007	21:05:00	14.14	0.00	5	4241
21:10:00	13.24	0.00	5	3972	21:10:00	14.02	0.00	5	4207
21:15:00	13.13	0.00	5	3939	21:15:00	13.91	0.00	5	4174
21:20:00	13.02	0.00	5	3907	21:20:00	13.81	0.00	5	4142
21:25:00	12.92	0.00	5	3875	21:25:00	13.70	0.00	5	4110
21:30:00	12.82	0.00	5	3845	21:30:00	13.60	0.00	5	4080
21:35:00	12.72	0.00	5	3815	21:35:00	13.50	0.00	5	4050
21:40:00	12.62	0.00	5	3786	21:40:00	13.40	0.00	5	4021
21:45:00	12.53	0.00	5	3758	21:45:00	13.31	0.00	5	3993
21:50:00	12.44	0.00	5	3731	21:50:00	13.22	0.00	5	3965
21:55:00	12.35	0.00	5	3705	21:55:00	13.13	0.00	5	3938
22:00:00	12.26	0.00	5	3679	22:00:00	13.04	0.00	5	3912

ITERATIONS TO ACHIEVE VOLUME-TIME CRITERIA
CRITICAL TIME

	RUN	UNITS	GOALS	UNITS		RUN	UNITS	GOALS	UNITS
MODEL	VTFE0001	NA	NA	NA	MODEL	VTFE0002	NA	NA	NA
POND VOL @ 8 FT	23.55	AC-FT	NA	NA	POND VOL @ 3 FT	23.55	AC-FT	NA	NA
WEIR 1 ANGLE	111.0	DEGREES	NA	NA	WEIR 1 ANGLE	90.0	DEGREES	NA	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0.0	FT	NA	NA
WEIR 2 ANGLE	0.0	DEGREES	NA	NA	WEIR 2 ANGLE	0.0	DEGREES	NA	NA
WEIR 2 HEIGHT	0.0	FT	NA	NA	WEIR 2 HEIGHT	0.0	FT	NA	NA
VOL. CRIT. TIME	18.0	AC-FT	14.1	AC-FT	VOL. CRIT. TIME	15.4	AC-FT	14.1	AC-FT
PEAK FLOW	52.4	CFS	57	CFS	PEAK FLOW	41.8	CFS	57	CFS
ROUTED DEPTH	2.9	FT	3.0	FT	ROUTED DEPTH	3.1	FT	3.0	FT
22:05:00	12.18	0.00	5	3654	22:05:00	12.96	0.00	5	3887
22:10:00	12.10	0.00	5	3630	22:10:00	12.87	0.00	5	3862
22:15:00	12.02	0.00	5	3607	22:15:00	12.79	0.00	5	3838
22:20:00	11.95	0.00	5	3584	22:20:00	12.71	0.00	5	3814
22:25:00	11.87	0.00	5	3562	22:25:00	12.64	0.00	5	3791
22:30:00	11.80	0.00	5	3540	22:30:00	12.56	0.00	5	3769
22:35:00	11.73	0.00	5	3519	22:35:00	12.49	0.00	5	3747
22:40:00	11.66	0.00	5	3499	22:40:00	12.42	0.00	5	3726
22:45:00	11.60	0.00	5	3479	22:45:00	12.35	0.00	5	3705
22:50:00	11.53	0.00	5	3460	22:50:00	12.28	0.00	5	3685
22:55:00	11.47	0.00	5	3441	22:55:00	12.22	0.00	5	3665
23:00:00	11.41	0.00	5	3422	23:00:00	12.15	0.00	5	3645
23:05:00	11.35	0.00	5	3405	23:05:00	12.09	0.00	5	3626
23:10:00	11.29	0.00	5	3388	23:10:00	12.03	0.00	5	3608
23:15:00	11.24	0.00	5	3371	23:15:00	11.97	0.00	5	3590
23:20:00	11.18	0.00	5	3354	23:20:00	11.91	0.00	5	3572
23:25:00	11.13	0.00	5	3338	23:25:00	11.85	0.00	5	3555
23:30:00	11.08	0.00	5	3323	23:30:00	11.80	0.00	5	3539
23:35:00	11.03	0.00	5	3308	23:35:00	11.74	0.00	5	3522
23:40:00	10.98	0.00	5	3293	23:40:00	11.69	0.00	5	3506
23:45:00	10.93	0.00	5	3279	23:45:00	11.64	0.00	5	3491
23:50:00	10.88	0.00	5	3265	23:50:00	11.59	0.00	5	3476
23:55:00	10.84	0.00	5	3251	23:55:00	11.54	0.00	5	3461
0:00:00	10.79	0.00	5	3238	0:00:00	11.49	0.00	5	3446
0:05:00	10.75	0.00	5	3225	0:05:00	11.44	0.00	5	3431
0:10:00	10.70	0.00	5	3211	0:10:00	11.39	0.00	5	3416
0:15:00	10.65	0.00	5	3196	0:15:00	11.33	0.00	5	3400
0:20:00	10.60	0.00	5	3180	0:20:00	11.28	0.00	5	3383
0:25:00	10.54	0.00	5	3162	0:25:00	11.22	0.00	5	3365
0:30:00	10.47	0.00	5	3142	0:30:00	11.15	0.00	5	3344
0:35:00	10.40	0.00	5	3121	0:35:00	11.08	0.00	5	3323
0:40:00	10.33	0.00	5	3098	0:40:00	11.00	0.00	5	3300
0:45:00	10.25	0.00	5	3074	0:45:00	10.92	0.00	5	3276
0:50:00	10.17	0.00	5	3050	0:50:00	10.84	0.00	5	3252
0:55:00	10.09	0.00	5	3026	0:55:00	10.76	0.00	5	3227
1:00:00	10.00	0.00	5	3000	1:00:00	10.67	0.00	5	3202
1:05:00	9.92	0.00	5	2975	1:05:00	10.59	0.00	5	3177
1:10:00	9.83	0.00	5	2948	1:10:00	10.50	0.00	5	3151
1:15:00	9.74	0.00	5	2922	1:15:00	10.42	0.00	5	3125
1:20:00	9.65	0.00	5	2896	1:20:00	10.33	0.00	5	3099
1:25:00	9.57	0.00	5	2870	1:25:00	10.24	0.00	5	3073
1:30:00	9.48	0.00	5	2843	1:30:00	10.16	0.00	5	3047
1:35:00	9.39	0.00	5	2817	1:35:00	10.07	0.00	5	3021
1:40:00	9.30	0.00	5	2790	1:40:00	9.98	0.00	5	2995
1:45:00	9.21	0.00	5	2764	1:45:00	9.90	0.00	5	2969
1:50:00	9.13	0.00	5	2738	1:50:00	9.81	0.00	5	2943
1:55:00	9.04	0.00	5	2711	1:55:00	9.72	0.00	5	2917
2:00:00	8.95	0.00	5	2685	2:00:00	9.64	0.00	5	2891
2:05:00	8.87	0.00	5	2660	2:05:00	9.55	0.00	5	2865
2:10:00	8.78	0.00	5	2634	2:10:00	9.47	0.00	5	2840
2:15:00	8.69	0.00	5	2608	2:15:00	9.38	0.00	5	2814
2:20:00	8.61	0.00	5	2583	2:20:00	9.30	0.00	5	2789
2:25:00	8.53	0.00	5	2558	2:25:00	9.21	0.00	5	2764

ITERATIONS TO ACHIEVE VOLUME-TIME CRITERIA
CRITICAL TIME

	RUN	UNITS	GOALS	UNITS		RUN	UNITS	GOALS	UNITS
MODEL	VTFE0001	NA	NA	NA	MODEL	VTFE0002	NA	NA	NA
POND VOL @ 8 FT	23.55	AC-FT	NA	NA	POND VOL @ 3 FT	23.55	AC-FT	NA	NA
WEIR 1 ANGLE	111.0	DEGREES	NA	NA	WEIR 1 ANGLE	90.0	DEGREES	NA	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0.0	FT	NA	NA
WEIR 2 ANGLE	0.0	DEGREES	NA	NA	WEIR 2 ANGLE	0.0	DEGREES	NA	NA
WEIR 2 HEIGHT	0.0	FT	NA	NA	WEIR 2 HEIGHT	0.0	FT	NA	NA
VOL. CRIT. TIME	18.0	AC-FT	14.1	AC-FT	VOL. CRIT. TIME	15.4	AC-FT	14.1	AC-FT
PEAK FLOW	52.4	CFS	57	CFS	PEAK FLOW	41.8	CFS	57	CFS
ROUTED DEPTH	2.9	FT	3.0	FT	ROUTED DEPTH	3.1	FT	3.0	FT
	DISCHARGE FROM WEIR 1	DISCHARGE FROM WEIR 2	DURATION OF DISCHARGE	VOLUME DISCHARGE		DISCHARGE FROM WEIR 1	DISCHARGE FROM WEIR 2	DURATION OF DISCHARGE	VOLUME DISCHARGE
TIME	(CFS)	(CFS)	(MIN)	(CF)	TIME	(CFS)	(CFS)	(MIN)	(CF)
2:30:00	8.44	0.00	5	2533	2:30:00	9.13	0.00	5	2739
2:35:00	8.36	0.00	5	2508	2:35:00	9.05	0.00	5	2715
2:40:00	8.28	0.00	5	2483	2:40:00	8.97	0.00	5	2690
2:45:00	8.20	0.00	5	2459	2:45:00	8.89	0.00	5	2666
2:50:00	8.12	0.00	5	2435	2:50:00	8.81	0.00	5	2642
2:55:00	8.04	0.00	5	2411	2:55:00	8.73	0.00	5	2618
3:00:00	7.96	0.00	5	2387	3:00:00	8.65	0.00	5	2594
3:05:00	7.88	0.00	5	2364	3:05:00	8.57	0.00	5	2571
3:10:00	7.80	0.00	5	2341	3:10:00	8.49	0.00	5	2548
3:15:00	7.73	0.00	5	2318	3:15:00	8.42	0.00	5	2525
3:20:00	7.65	0.00	5	2295	3:20:00	8.34	0.00	5	2502
3:25:00	7.58	0.00	5	2273	3:25:00	8.27	0.00	5	2480
3:30:00	7.50	0.00	5	2250	3:30:00	8.19	0.00	5	2457
3:35:00	7.43	0.00	5	2228	3:35:00	8.12	0.00	5	2435
3:40:00	7.36	0.00	5	2207	3:40:00	8.04	0.00	5	2413
3:45:00	7.28	0.00	5	2185	3:45:00	7.97	0.00	5	2392
3:50:00	7.21	0.00	5	2164	3:50:00	7.90	0.00	5	2370
3:55:00	7.14	0.00	5	2143	3:55:00	7.83	0.00	5	2349
4:00:00	7.08	0.00	5	2123	4:00:00	7.76	0.00	5	2328
4:05:00	7.01	0.00	5	2102	4:05:00	7.69	0.00	5	2307
4:10:00	6.94	0.00	5	2082	4:10:00	7.62	0.00	5	2287
4:15:00	6.87	0.00	5	2062	4:15:00	7.56	0.00	5	2267
4:20:00	6.81	0.00	5	2042	4:20:00	7.49	0.00	5	2247
4:25:00	6.74	0.00	5	2023	4:25:00	7.42	0.00	5	2227
4:30:00	6.68	0.00	5	2003	4:30:00	7.36	0.00	5	2207
4:35:00	6.62	0.00	5	1985	4:35:00	7.29	0.00	5	2188
4:40:00	6.55	0.00	5	1966	4:40:00	7.23	0.00	5	2169
4:45:00	6.49	0.00	5	1947	4:45:00	7.17	0.00	5	2150
4:50:00	6.43	0.00	5	1929	4:50:00	7.11	0.00	5	2132
4:55:00	6.37	0.00	5	1911	4:55:00	7.04	0.00	5	2113
5:00:00	6.31	0.00	5	1893	5:00:00	6.98	0.00	5	2095
5:05:00	6.25	0.00	5	1876	5:05:00	6.92	0.00	5	2077
5:10:00	6.19	0.00	5	1858	5:10:00	6.86	0.00	5	2059
5:15:00	6.14	0.00	5	1841	5:15:00	6.80	0.00	5	2041
5:20:00	6.08	0.00	5	1824	5:20:00	6.75	0.00	5	2024
5:25:00	6.02	0.00	5	1807	5:25:00	6.69	0.00	5	2006
5:30:00	5.97	0.00	5	1791	5:30:00	6.63	0.00	5	1989
5:35:00	5.91	0.00	5	1774	5:35:00	6.58	0.00	5	1973
5:40:00	5.86	0.00	5	1758	5:40:00	6.52	0.00	5	1956
5:45:00	5.81	0.00	5	1742	5:45:00	6.47	0.00	5	1940
5:50:00	5.76	0.00	5	1727	5:50:00	6.41	0.00	5	1923
5:55:00	5.70	0.00	5	1711	5:55:00	6.36	0.00	5	1907
6:00:00	5.65	0.00	5	1695	6:00:00	6.30	0.00	5	1891
6:05:00	5.60	0.00	5	1680	6:05:00	6.25	0.00	5	1875
6:10:00	5.55	0.00	5	1665	6:10:00	6.20	0.00	5	1860
6:15:00	5.50	0.00	5	1651	6:15:00	6.15	0.00	5	1844
6:20:00	5.45	0.00	5	1636	6:20:00	6.10	0.00	5	1829
6:25:00	5.41	0.00	5	1622	6:25:00	6.05	0.00	5	1814
6:30:00	5.36	0.00	5	1607	6:30:00	6.00	0.00	5	1799
6:35:00	5.31	0.00	5	1593	6:35:00	5.95	0.00	5	1785
6:40:00	5.26	0.00	5	1579	6:40:00	5.90	0.00	5	1770
6:45:00	5.22	0.00	5	1565	6:45:00	5.85	0.00	5	1756
6:50:00	5.17	0.00	5	1552	6:50:00	5.81	0.00	5	1742

ITERATIONS TO ACHIEVE VOLUME-TIME CRITERIA

CRITICAL TIME

	RUN	UNITS	GOALS	UNITS		RUN	UNITS	GOALS	UNITS
TIME	(CFS)	(CFS)	(MIN)	(CF)	TIME	(CFS)	(CFS)	(MIN)	(CF)
6:55:00	5.13	0.00	5	1538	6:55:00	5.76	0.00	5	1728
7:00:00	5.08	0.00	5	1525	7:00:00	5.71	0.00	5	1714
7:05:00	5.04	0.00	5	1512	7:05:00	5.67	0.00	5	1700
7:10:00	5.00	0.00	5	1499	7:10:00	5.62	0.00	5	1686
7:15:00	4.95	0.00	5	1486	7:15:00	5.58	0.00	5	1673
7:20:00	4.91	0.00	5	1474	7:20:00	5.53	0.00	5	1660
7:25:00	4.87	0.00	5	1461	7:25:00	5.49	0.00	5	1647
7:30:00	4.83	0.00	5	1449	7:30:00	5.45	0.00	5	1634
7:35:00	4.79	0.00	5	1436	7:35:00	5.40	0.00	5	1621
7:40:00	4.75	0.00	5	1424	7:40:00	5.36	0.00	5	1608
7:45:00	4.71	0.00	5	1413	7:45:00	5.32	0.00	5	1596
7:50:00	4.67	0.00	5	1401	7:50:00	5.28	0.00	5	1583
7:55:00	4.63	0.00	5	1389	7:55:00	5.24	0.00	5	1571
8:00:00	4.59	0.00	5	1378	8:00:00	5.20	0.00	5	1559

ITERATIONS TO ACHIEVE VOLUME-TIME CRITERIA
CRITICAL TIME

	RUN	UNITS	GOALS	UNITS		RUN	UNITS	GOALS	UNITS
MODEL	VTFE0003	NA	NA	NA	MODEL	VTFE0004	NA	NA	NA
POND VOL @ 3 FT	25.5	AC-FT	NA	NA	POND VOL @ 8 FT	25.5	AC-FT	NA	NA
WEIR 1 ANGLE	85.0	DEGREES	NA	NA	WEIR 1 ANGLE	25	DEGREES	NA	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0	FT	NA	NA
WEIR 2 ANGLE	0.0	DEGREES	NA	NA	WEIR 2 ANGLE	140.0	DEGREES	NA	NA
WEIR 2 HEIGHT	0.0	FT	NA	NA	WEIR 2 HEIGHT	1.2	FT	NA	NA
VOL. CRIT. TIME	13.4	AC-FT	14.1	AC-FT	VOL. CRIT. TIME	13.1	AC-FT	14.1	AC-FT
PEAK FLOW	35.0	CFS	57	CFS	PEAK FLOW	38.3	CFS	57	CFS
ROUTED DEPTH	3.0	FT	3.0	FT	ROUTED DEPTH	3.0	FT	3.0	FT
	DURATION					DURATION			
	DISCHARGE	DISCHARGE	OF	VOLUME		DISCHARGE	DISCHARGE	OF	VOLUME
	FROM WEIR 1	FROM WEIR 2	DISCHARGE	DISCHARGE		FROM WEIR 1	FROM WEIR 2	DISCHARGE	DISCHARGE
0:00:00	0.00	0.00	0	0	0:00:00	0.00	0.00	0	0
0:05:00	0.00	0.00	5	0	0:05:00	0.00	0.00	5	0
0:10:00	0.00	0.00	5	0	0:10:00	0.00	0.00	5	0
0:15:00	0.00	0.00	5	0	0:15:00	0.00	0.00	5	0
0:20:00	0.00	0.00	5	0	0:20:00	0.00	0.00	5	0
0:25:00	0.00	0.00	5	0	0:25:00	0.00	0.00	5	0
0:30:00	0.00	0.00	5	0	0:30:00	0.00	0.00	5	0
0:35:00	0.00	0.00	5	0	0:35:00	0.00	0.00	5	0
0:40:00	0.00	0.00	5	0	0:40:00	0.00	0.00	5	0
0:45:00	0.00	0.00	5	0	0:45:00	0.00	0.00	5	0
0:50:00	0.00	0.00	5	0	0:50:00	0.00	0.00	5	0
0:55:00	0.00	0.00	5	0	0:55:00	0.00	0.00	5	0
1:00:00	0.00	0.00	5	0	1:00:00	0.00	0.00	5	0
1:05:00	0.00	0.00	5	0	1:05:00	0.00	0.00	5	0
1:10:00	0.00	0.00	5	0	1:10:00	0.00	0.00	5	0
1:15:00	0.00	0.00	5	0	1:15:00	0.00	0.00	5	0
1:20:00	0.00	0.00	5	0	1:20:00	0.00	0.00	5	0
1:25:00	0.00	0.00	5	0	1:25:00	0.00	0.00	5	0
1:30:00	0.00	0.00	5	0	1:30:00	0.00	0.00	5	0
1:35:00	0.00	0.00	5	0	1:35:00	0.00	0.00	5	0
1:40:00	0.00	0.00	5	0	1:40:00	0.00	0.00	5	0
1:45:00	0.00	0.00	5	0	1:45:00	0.00	0.00	5	0
1:50:00	0.00	0.00	5	0	1:50:00	0.00	0.00	5	0
1:55:00	0.00	0.00	5	0	1:55:00	0.00	0.00	5	0
2:00:00	0.00	0.00	5	0	2:00:00	0.00	0.00	5	0
2:05:00	0.00	0.00	5	0	2:05:00	0.00	0.00	5	0
2:10:00	0.00	0.00	5	0	2:10:00	0.00	0.00	5	0
2:15:00	0.00	0.00	5	0	2:15:00	0.00	0.00	5	0
2:20:00	0.00	0.00	5	0	2:20:00	0.00	0.00	5	0
2:25:00	0.00	0.00	5	0	2:25:00	0.00	0.00	5	0
2:30:00	0.00	0.00	5	0	2:30:00	0.00	0.00	5	0
2:35:00	0.00	0.00	5	0	2:35:00	0.00	0.00	5	0
2:40:00	0.00	0.00	5	0	2:40:00	0.00	0.00	5	0
2:45:00	0.00	0.00	5	0	2:45:00	0.00	0.00	5	0
2:50:00	0.00	0.00	5	0	2:50:00	0.00	0.00	5	0
2:55:00	0.00	0.00	5	0	2:55:00	0.00	0.00	5	0
3:00:00	0.00	0.00	5	0	3:00:00	0.00	0.00	5	0
3:05:00	0.00	0.00	5	0	3:05:00	0.00	0.00	5	0
3:10:00	0.00	0.00	5	0	3:10:00	0.00	0.00	5	0
3:15:00	0.00	0.00	5	0	3:15:00	0.00	0.00	5	0
3:20:00	0.00	0.00	5	0	3:20:00	0.00	0.00	5	0
3:25:00	0.00	0.00	5	0	3:25:00	0.00	0.00	5	0
3:30:00	0.00	0.00	5	0	3:30:00	0.00	0.00	5	0
3:35:00	0.00	0.00	5	0	3:35:00	0.00	0.00	5	0
3:40:00	0.00	0.00	5	1	3:40:00	0.00	0.00	5	0
3:45:00	0.00	0.00	5	1	3:45:00	0.00	0.00	5	0
3:50:00	0.00	0.00	5	1	3:50:00	0.00	0.00	5	0
3:55:00	0.00	0.00	5	1	3:55:00	0.00	0.00	5	0
4:00:00	0.00	0.00	5	1	4:00:00	0.00	0.00	5	0
4:05:00	0.00	0.00	5	1	4:05:00	0.00	0.00	5	0
4:10:00	0.00	0.00	5	1	4:10:00	0.00	0.00	5	0
4:15:00	0.00	0.00	5	1	4:15:00	0.00	0.00	5	0
4:20:00	0.00	0.00	5	1	4:20:00	0.00	0.00	5	0

ITERATIONS TO ACHIEVE VOLUME-TIME CRITERIA
CRITICAL TIME

	RUN	UNITS	GOALS	UNITS		RUN	UNITS	GOALS	UNITS
MODEL	VTFE0003	NA	NA	NA	MODEL	VTFE0004	NA	NA	NA
POND VOL @ 3 FT	25.5	AC-FT	NA	NA	POND VOL @ 8 FT	25.5	AC-FT	NA	NA
WEIR 1 ANGLE	85.0	DEGREES	NA	NA	WEIR 1 ANGLE	25	DEGREES	NA	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0	FT	NA	NA
WEIR 2 ANGLE	0.0	DEGREES	NA	NA	WEIR 2 ANGLE	140.0	DEGREES	NA	NA
WEIR 2 HEIGHT	0.0	FT	NA	NA	WEIR 2 HEIGHT	1.2	FT	NA	NA
VOL. CRIT. TIME	13.4	AC-FT	14.1	AC-FT	VOL. CRIT. TIME	13.1	AC-FT	14.1	AC-FT
PEAK FLOW	35.0	CFS	57	CFS	PEAK FLOW	38.3	CFS	57	CFS
ROUTED DEPTH	3.0	FT	3.0	FT	ROUTED DEPTH	3.0	FT	3.0	FT
	DISCHARGE FROM WEIR 1	DISCHARGE FROM WEIR 2	DURATION OF DISCHARGE	VOLUME DISCHARGE		DISCHARGE FROM WEIR 1	DISCHARGE FROM WEIR 2	DURATION OF DISCHARGE	VOLUME DISCHARGE
TIME	(CFS)	(CFS)	(MIN)	(CF)	TIME	(CFS)	(CFS)	(MIN)	(CF)
4:25:00	0.00	0.00	5	1	4:25:00	0.00	0.00	5	0
4:30:00	0.01	0.00	5	2	4:30:00	0.00	0.00	5	0
4:35:00	0.01	0.00	5	2	4:35:00	0.00	0.00	5	0
4:40:00	0.01	0.00	5	2	4:40:00	0.00	0.00	5	0
4:45:00	0.01	0.00	5	2	4:45:00	0.00	0.00	5	0
4:50:00	0.01	0.00	5	2	4:50:00	0.00	0.00	5	0
4:55:00	0.01	0.00	5	2	4:55:00	0.00	0.00	5	1
5:00:00	0.01	0.00	5	2	5:00:00	0.00	0.00	5	1
5:05:00	0.01	0.00	5	3	5:05:00	0.00	0.00	5	1
5:10:00	0.01	0.00	5	3	5:10:00	0.00	0.00	5	1
5:15:00	0.01	0.00	5	3	5:15:00	0.00	0.00	5	1
5:20:00	0.01	0.00	5	3	5:20:00	0.00	0.00	5	1
5:25:00	0.01	0.00	5	4	5:25:00	0.00	0.00	5	1
5:30:00	0.01	0.00	5	4	5:30:00	0.00	0.00	5	1
5:35:00	0.01	0.00	5	4	5:35:00	0.00	0.00	5	1
5:40:00	0.02	0.00	5	5	5:40:00	0.00	0.00	5	1
5:45:00	0.02	0.00	5	5	5:45:00	0.00	0.00	5	1
5:50:00	0.02	0.00	5	5	5:50:00	0.00	0.00	5	1
5:55:00	0.02	0.00	5	5	5:55:00	0.00	0.00	5	1
6:00:00	0.02	0.00	5	6	6:00:00	0.00	0.00	5	1
6:05:00	0.02	0.00	5	6	6:05:00	0.01	0.00	5	2
6:10:00	0.02	0.00	5	7	6:10:00	0.01	0.00	5	2
6:15:00	0.02	0.00	5	7	6:15:00	0.01	0.00	5	2
6:20:00	0.02	0.00	5	7	6:20:00	0.01	0.00	5	2
6:25:00	0.03	0.00	5	8	6:25:00	0.01	0.00	5	2
6:30:00	0.03	0.00	5	8	6:30:00	0.01	0.00	5	2
6:35:00	0.03	0.00	5	9	6:35:00	0.01	0.00	5	2
6:40:00	0.03	0.00	5	9	6:40:00	0.01	0.00	5	2
6:45:00	0.03	0.00	5	10	6:45:00	0.01	0.00	5	2
6:50:00	0.04	0.00	5	11	6:50:00	0.01	0.00	5	2
6:55:00	0.04	0.00	5	11	6:55:00	0.01	0.00	5	2
7:00:00	0.04	0.00	5	12	7:00:00	0.01	0.00	5	3
7:05:00	0.04	0.00	5	12	7:05:00	0.01	0.00	5	3
7:10:00	0.04	0.00	5	13	7:10:00	0.01	0.00	5	3
7:15:00	0.05	0.00	5	14	7:15:00	0.01	0.00	5	3
7:20:00	0.05	0.00	5	14	7:20:00	0.01	0.00	5	3
7:25:00	0.05	0.00	5	15	7:25:00	0.01	0.00	5	4
7:30:00	0.05	0.00	5	16	7:30:00	0.01	0.00	5	4
7:35:00	0.06	0.00	5	17	7:35:00	0.01	0.00	5	4
7:40:00	0.06	0.00	5	18	7:40:00	0.01	0.00	5	4
7:45:00	0.06	0.00	5	19	7:45:00	0.01	0.00	5	4
7:50:00	0.07	0.00	5	20	7:50:00	0.02	0.00	5	5
7:55:00	0.07	0.00	5	20	7:55:00	0.02	0.00	5	5
8:00:00	0.07	0.00	5	21	8:00:00	0.02	0.00	5	5
8:05:00	0.07	0.00	5	22	8:05:00	0.02	0.00	5	5
8:10:00	0.08	0.00	5	23	8:10:00	0.02	0.00	5	5
8:15:00	0.08	0.00	5	24	8:15:00	0.02	0.00	5	6
8:20:00	0.09	0.00	5	26	8:20:00	0.02	0.00	5	6
8:25:00	0.09	0.00	5	26	8:25:00	0.02	0.00	5	6
8:30:00	0.09	0.00	5	28	8:30:00	0.02	0.00	5	7
8:35:00	0.10	0.00	5	29	8:35:00	0.02	0.00	5	7
8:40:00	0.10	0.00	5	30	8:40:00	0.02	0.00	5	7
8:45:00	0.11	0.00	5	32	8:45:00	0.03	0.00	5	8

ITERATIONS TO ACHIEVE VOLUME-TIME CRITERIA
CRITICAL TIME

	RUN	UNITS	GOALS	UNITS		RUN	UNITS	GOALS	UNITS
MODEL	VTFE0003	NA	NA	NA	MODEL	VTFE0004	NA	NA	NA
POND VOL @ 3 FT	25.5	AC-FT	NA	NA	POND VOL @ 8 FT	25.5	AC-FT	NA	NA
WEIR 1 ANGLE	85.0	DEGREES	NA	NA	WEIR 1 ANGLE	25	DEGREES	NA	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0	FT	NA	NA
WEIR 2 ANGLE	0.0	DEGREES	NA	NA	WEIR 2 ANGLE	140.0	DEGREES	NA	NA
WEIR 2 HEIGHT	0.0	FT	NA	NA	WEIR 2 HEIGHT	1.2	FT	NA	NA
VOL. CRIT. TIME	13.4	AC-FT	14.1	AC-FT	VOL. CRIT. TIME	13.1	AC-FT	14.1	AC-FT
PEAK FLOW	35.0	CFS	57	CFS	PEAK FLOW	38.3	CFS	57	CFS
ROUTED DEPTH	3.0	FT	3.0	FT	ROUTED DEPTH	3.0	FT	3.0	FT
8:50:00	0.11	0.00	5	34	8:50:00	0.03	0.00	5	8
8:55:00	0.12	0.00	5	35	8:55:00	0.03	0.00	5	8
9:00:00	0.12	0.00	5	37	9:00:00	0.03	0.00	5	9
9:05:00	0.13	0.00	5	39	9:05:00	0.03	0.00	5	9
9:10:00	0.14	0.00	5	41	9:10:00	0.03	0.00	5	10
9:15:00	0.14	0.00	5	43	9:15:00	0.03	0.00	5	10
9:20:00	0.15	0.00	5	45	9:20:00	0.04	0.00	5	11
9:25:00	0.16	0.00	5	47	9:25:00	0.04	0.00	5	11
9:30:00	0.16	0.00	5	49	9:30:00	0.04	0.00	5	12
9:35:00	0.17	0.00	5	52	9:35:00	0.04	0.00	5	12
9:40:00	0.18	0.00	5	54	9:40:00	0.04	0.00	5	13
9:45:00	0.19	0.00	5	57	9:45:00	0.05	0.00	5	14
9:50:00	0.20	0.00	5	59	9:50:00	0.05	0.00	5	14
9:55:00	0.21	0.00	5	62	9:55:00	0.05	0.00	5	15
10:00:00	0.22	0.00	5	65	10:00:00	0.05	0.00	5	16
10:05:00	0.23	0.00	5	69	10:05:00	0.06	0.00	5	17
10:10:00	0.24	0.00	5	72	10:10:00	0.06	0.00	5	17
10:15:00	0.25	0.00	5	76	10:15:00	0.06	0.00	5	18
10:20:00	0.26	0.00	5	79	10:20:00	0.06	0.00	5	19
10:25:00	0.28	0.00	5	83	10:25:00	0.07	0.00	5	20
10:30:00	0.29	0.00	5	87	10:30:00	0.07	0.00	5	21
10:35:00	0.31	0.00	5	92	10:35:00	0.07	0.00	5	22
10:40:00	0.32	0.00	5	97	10:40:00	0.08	0.00	5	23
10:45:00	0.34	0.00	5	102	10:45:00	0.08	0.00	5	25
10:50:00	0.36	0.00	5	107	10:50:00	0.09	0.00	5	26
10:55:00	0.38	0.00	5	114	10:55:00	0.09	0.00	5	28
11:00:00	0.40	0.00	5	121	11:00:00	0.10	0.00	5	29
11:05:00	0.43	0.00	5	128	11:05:00	0.10	0.00	5	31
11:10:00	0.46	0.00	5	137	11:10:00	0.11	0.00	5	33
11:15:00	0.49	0.00	5	147	11:15:00	0.12	0.00	5	36
11:20:00	0.52	0.00	5	157	11:20:00	0.13	0.00	5	38
11:25:00	0.56	0.00	5	169	11:25:00	0.14	0.00	5	41
11:30:00	0.61	0.00	5	182	11:30:00	0.15	0.00	5	44
11:35:00	0.66	0.00	5	197	11:35:00	0.16	0.00	5	48
11:40:00	0.71	0.00	5	213	11:40:00	0.17	0.00	5	52
11:45:00	0.77	0.00	5	231	11:45:00	0.19	0.00	5	57
11:50:00	0.88	0.00	5	263	11:50:00	0.22	0.00	5	65
11:55:00	1.07	0.00	5	322	11:55:00	0.26	0.00	5	79
12:00:00	1.39	0.00	5	418	12:00:00	0.34	0.00	5	103
12:05:00	2.04	0.00	5	611	12:05:00	0.50	0.00	5	150
12:10:00	3.41	0.00	5	1022	12:10:00	0.84	0.00	5	251
12:15:00	6.01	0.00	5	1802	12:15:00	1.48	0.31	5	538
12:20:00	9.59	0.00	5	2878	12:20:00	2.37	1.90	5	1279
12:25:00	13.03	0.00	5	3910	12:25:00	3.23	4.35	5	2273
12:30:00	15.82	0.00	5	4745	12:30:00	3.93	6.85	5	3232
12:35:00	18.08	0.00	5	5423	12:35:00	4.50	9.14	5	4093
12:40:00	20.18	0.00	5	6053	12:40:00	5.03	11.46	5	4947
12:45:00	22.06	0.00	5	6619	12:45:00	5.51	13.66	5	5751
12:50:00	23.77	0.00	5	7131	12:50:00	5.94	15.74	5	6504
12:55:00	25.35	0.00	5	7605	12:55:00	6.34	17.72	5	7219
13:00:00	26.79	0.00	5	8036	13:00:00	6.70	19.56	5	7879
13:05:00	28.09	0.00	5	8426	13:05:00	7.02	21.26	5	8483
13:10:00	29.26	0.00	5	8778	13:10:00	7.31	22.79	5	9030

ITERATIONS TO ACHIEVE VOLUME-TIME CRITERIA
CRITICAL TIME

	RUN	UNITS	GOALS	UNITS		RUN	UNITS	GOALS	UNITS
MODEL	VTFE0003	NA	NA	NA	MODEL	VTFE0004	NA	NA	NA
POND VOL @ 3 FT	25.5	AC-FT	NA	NA	POND VOL @ 8 FT	25.5	AC-FT	NA	NA
WEIR 1 ANGLE	85.0	DEGREES	NA	NA	WEIR 1 ANGLE	25	DEGREES	NA	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0	FT	NA	NA
WEIR 2 ANGLE	0.0	DEGREES	NA	NA	WEIR 2 ANGLE	140.0	DEGREES	NA	NA
WEIR 2 HEIGHT	0.0	FT	NA	NA	WEIR 2 HEIGHT	1.2	FT	NA	NA
VOL. CRIT. TIME	13.4	AC-FT	14.1	AC-FT	VOL. CRIT. TIME	13.1	AC-FT	14.1	AC-FT
PEAK FLOW	35.0	CFS	57	CFS	PEAK FLOW	38.3	CFS	57	CFS
ROUTED DEPTH	3.0	FT	3.0	FT	ROUTED DEPTH	3.0	FT	3.0	FT
	DISCHARGE FROM WEIR 1	DISCHARGE FROM WEIR 2	DURATION OF DISCHARGE	VOLUME DISCHARGE		DISCHARGE FROM WEIR 1	DISCHARGE FROM WEIR 2	DURATION OF DISCHARGE	VOLUME DISCHARGE
TIME	(CFS)	(CFS)	(MIN)	(CF)	TIME	(CFS)	(CFS)	(MIN)	(CF)
13:15:00	30.29	0.00	5	9088	13:15:00	7.56	24.15	5	9512
13:20:00	31.21	0.00	5	9362	13:20:00	7.77	25.34	5	9935
13:25:00	32.01	0.00	5	9602	13:25:00	7.96	26.38	5	10301
13:30:00	32.69	0.00	5	9807	13:30:00	8.11	27.25	5	10610
13:35:00	33.27	0.00	5	9982	13:35:00	8.24	27.98	5	10865
13:40:00	33.77	0.00	5	10130	13:40:00	8.34	28.57	5	11074
13:45:00	34.17	0.00	5	10250	13:45:00	8.43	29.03	5	11237
13:50:00	34.48	0.00	5	10345	13:50:00	8.48	29.37	5	11357
13:55:00	34.73	0.00	5	10418	13:55:00	8.52	29.60	5	11438
14:00:00	34.89	0.00	5	10467	14:00:00	8.55	29.73	5	11481
14:05:00	34.99	0.00	5	10497	14:05:00	8.55	29.76	5	11492
14:10:00	35.04	0.00	5	10511	14:10:00	8.54	29.71	5	11477
14:15:00	35.02	0.00	5	10507	14:15:00	8.52	29.60	5	11436
14:20:00	34.97	0.00	5	10490	14:20:00	8.49	29.42	5	11372
14:25:00	34.86	0.00	5	10459	14:25:00	8.45	29.18	5	11290
14:30:00	34.72	0.00	5	10416	14:30:00	8.40	28.90	5	11189
14:35:00	34.54	0.00	5	10362	14:35:00	8.34	28.57	5	11074
14:40:00	34.33	0.00	5	10299	14:40:00	8.28	28.21	5	10946
14:45:00	34.09	0.00	5	10226	14:45:00	8.21	27.81	5	10805
14:50:00	33.82	0.00	5	10145	14:50:00	8.14	27.38	5	10654
14:55:00	33.52	0.00	5	10056	14:55:00	8.06	26.93	5	10495
15:00:00	33.20	0.00	5	9960	15:00:00	7.97	26.45	5	10328
15:05:00	32.86	0.00	5	9859	15:05:00	7.89	25.97	5	10156
15:10:00	32.52	0.00	5	9755	15:10:00	7.80	25.47	5	9980
15:15:00	32.16	0.00	5	9647	15:15:00	7.71	24.97	5	9803
15:20:00	31.79	0.00	5	9536	15:20:00	7.62	24.47	5	9625
15:25:00	31.41	0.00	5	9424	15:25:00	7.52	23.97	5	9448
15:30:00	31.03	0.00	5	9310	15:30:00	7.43	23.47	5	9272
15:35:00	30.65	0.00	5	9195	15:35:00	7.34	22.98	5	9095
15:40:00	30.26	0.00	5	9078	15:40:00	7.25	22.48	5	8919
15:45:00	29.86	0.00	5	8959	15:45:00	7.16	21.98	5	8742
15:50:00	29.46	0.00	5	8839	15:50:00	7.07	21.49	5	8567
15:55:00	29.07	0.00	5	8720	15:55:00	6.98	21.01	5	8395
16:00:00	28.67	0.00	5	8600	16:00:00	6.89	20.53	5	8224
16:05:00	28.27	0.00	5	8481	16:05:00	6.80	20.06	5	8057
16:10:00	27.88	0.00	5	8363	16:10:00	6.71	19.60	5	7893
16:15:00	27.48	0.00	5	8245	16:15:00	6.62	19.15	5	7733
16:20:00	27.10	0.00	5	8129	16:20:00	6.54	18.72	5	7576
16:25:00	26.72	0.00	5	8015	16:25:00	6.45	18.29	5	7424
16:30:00	26.34	0.00	5	7902	16:30:00	6.37	17.88	5	7275
16:35:00	25.97	0.00	5	7792	16:35:00	6.29	17.48	5	7131
16:40:00	25.61	0.00	5	7683	16:40:00	6.22	17.09	5	6991
16:45:00	25.25	0.00	5	7576	16:45:00	6.14	16.71	5	6855
16:50:00	24.90	0.00	5	7471	16:50:00	6.07	16.34	5	6723
16:55:00	24.56	0.00	5	7367	16:55:00	6.00	15.98	5	6594
17:00:00	24.22	0.00	5	7265	17:00:00	5.92	15.64	5	6468
17:05:00	23.88	0.00	5	7164	17:05:00	5.85	15.30	5	6345
17:10:00	23.55	0.00	5	7066	17:10:00	5.79	14.97	5	6226
17:15:00	23.23	0.00	5	6970	17:15:00	5.72	14.65	5	6111
17:20:00	22.92	0.00	5	6875	17:20:00	5.66	14.34	5	6000
17:25:00	22.61	0.00	5	6783	17:25:00	5.59	14.05	5	5892
17:30:00	22.31	0.00	5	6693	17:30:00	5.53	13.76	5	5788
17:35:00	22.02	0.00	5	6605	17:35:00	5.48	13.48	5	5687

ITERATIONS TO ACHIEVE VOLUME-TIME CRITERIA
CRITICAL TIME

	RUN	UNITS	GOALS	UNITS		RUN	UNITS	GOALS	UNITS
TIME	DISCHARGE FROM WEIR 1 (CFS)	DISCHARGE FROM WEIR 2 (CFS)	DURATION OF DISCHARGE (MIN)	VOLUME DISCHARGE (CF)	TIME	DISCHARGE FROM WEIR 1 (CFS)	DISCHARGE FROM WEIR 2 (CFS)	DURATION OF DISCHARGE (MIN)	VOLUME DISCHARGE (CF)
17:40:00	21.73	0.00	5	6519	17:40:00	5.42	13.21	5	5590
17:45:00	21.45	0.00	5	6436	17:45:00	5.36	12.96	5	5495
17:50:00	21.18	0.00	5	6354	17:50:00	5.31	12.71	5	5405
17:55:00	20.91	0.00	5	6274	17:55:00	5.26	12.47	5	5317
18:00:00	20.65	0.00	5	6196	18:00:00	5.21	12.23	5	5232
18:05:00	20.40	0.00	5	6120	18:05:00	5.16	12.01	5	5149
18:10:00	20.15	0.00	5	6044	18:10:00	5.11	11.79	5	5068
18:15:00	19.90	0.00	5	5970	18:15:00	5.06	11.57	5	4989
18:20:00	19.66	0.00	5	5898	18:20:00	5.01	11.36	5	4912
18:25:00	19.42	0.00	5	5826	18:25:00	4.97	11.16	5	4837
18:30:00	19.19	0.00	5	5757	18:30:00	4.92	10.96	5	4764
18:35:00	18.96	0.00	5	5689	18:35:00	4.88	10.77	5	4694
18:40:00	18.74	0.00	5	5622	18:40:00	4.84	10.58	5	4626
18:45:00	18.53	0.00	5	5558	18:45:00	4.80	10.41	5	4560
18:50:00	18.32	0.00	5	5495	18:50:00	4.76	10.23	5	4497
18:55:00	18.11	0.00	5	5434	18:55:00	4.72	10.07	5	4436
19:00:00	17.92	0.00	5	5375	19:00:00	4.68	9.91	5	4378
19:05:00	17.72	0.00	5	5317	19:05:00	4.65	9.76	5	4322
19:10:00	17.54	0.00	5	5261	19:10:00	4.61	9.61	5	4268
19:15:00	17.36	0.00	5	5207	19:15:00	4.58	9.47	5	4216
19:20:00	17.18	0.00	5	5155	19:20:00	4.55	9.34	5	4166
19:25:00	17.01	0.00	5	5104	19:25:00	4.52	9.21	5	4118
19:30:00	16.85	0.00	5	5054	19:30:00	4.49	9.09	5	4073
19:35:00	16.69	0.00	5	5006	19:35:00	4.46	8.97	5	4029
19:40:00	16.53	0.00	5	4960	19:40:00	4.43	8.86	5	3987
19:45:00	16.38	0.00	5	4915	19:45:00	4.41	8.75	5	3947
19:50:00	16.24	0.00	5	4872	19:50:00	4.38	8.65	5	3908
19:55:00	16.10	0.00	5	4829	19:55:00	4.36	8.55	5	3871
20:00:00	15.96	0.00	5	4789	20:00:00	4.33	8.45	5	3836
20:05:00	15.83	0.00	5	4749	20:05:00	4.31	8.36	5	3802
20:10:00	15.70	0.00	5	4709	20:10:00	4.29	8.27	5	3768
20:15:00	15.57	0.00	5	4670	20:15:00	4.27	8.18	5	3734
20:20:00	15.44	0.00	5	4631	20:20:00	4.25	8.09	5	3701
20:25:00	15.31	0.00	5	4593	20:25:00	4.22	8.00	5	3668
20:30:00	15.19	0.00	5	4556	20:30:00	4.20	7.92	5	3636
20:35:00	15.06	0.00	5	4519	20:35:00	4.18	7.84	5	3605
20:40:00	14.94	0.00	5	4483	20:40:00	4.16	7.76	5	3575
20:45:00	14.82	0.00	5	4447	20:45:00	4.14	7.68	5	3545
20:50:00	14.71	0.00	5	4413	20:50:00	4.12	7.60	5	3517
20:55:00	14.60	0.00	5	4379	20:55:00	4.10	7.53	5	3489
21:00:00	14.49	0.00	5	4346	21:00:00	4.09	7.45	5	3462
21:05:00	14.38	0.00	5	4314	21:05:00	4.07	7.39	5	3436
21:10:00	14.27	0.00	5	4282	21:10:00	4.05	7.32	5	3410
21:15:00	14.17	0.00	5	4251	21:15:00	4.03	7.25	5	3386
21:20:00	14.07	0.00	5	4221	21:20:00	4.02	7.19	5	3362
21:25:00	13.97	0.00	5	4192	21:25:00	4.00	7.13	5	3339
21:30:00	13.88	0.00	5	4163	21:30:00	3.99	7.07	5	3317
21:35:00	13.78	0.00	5	4135	21:35:00	3.97	7.01	5	3295
21:40:00	13.69	0.00	5	4108	21:40:00	3.96	6.96	5	3274
21:45:00	13.61	0.00	5	4082	21:45:00	3.94	6.90	5	3254
21:50:00	13.52	0.00	5	4055	21:50:00	3.93	6.85	5	3234
21:55:00	13.43	0.00	5	4030	21:55:00	3.92	6.80	5	3215
22:00:00	13.35	0.00	5	4005	22:00:00	3.90	6.75	5	3197

ITERATIONS TO ACHIEVE VOLUME-TIME CRITERIA
CRITICAL TIME

	RUN	UNITS	GOALS	UNITS		RUN	UNITS	GOALS	UNITS
MODEL	VTFE0003	NA	NA	NA	MODEL	VTFE0004	NA	NA	NA
POND VOL @ 3 FT	25.5	AC-FT	NA	NA	POND VOL @ 8 FT	25.5	AC-FT	NA	NA
WEIR 1 ANGLE	85.0	DEGREES	NA	NA	WEIR 1 ANGLE	25	DEGREES	NA	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0	FT	NA	NA
WEIR 2 ANGLE	0.0	DEGREES	NA	NA	WEIR 2 ANGLE	140.0	DEGREES	NA	NA
WEIR 2 HEIGHT	0.0	FT	NA	NA	WEIR 2 HEIGHT	1.2	FT	NA	NA
VOL. CRIT. TIME	13.4	AC-FT	14.1	AC-FT	VOL. CRIT. TIME	13.1	AC-FT	14.1	AC-FT
PEAK FLOW	35.0	CFS	57	CFS	PEAK FLOW	38.3	CFS	57	CFS
ROUTED DEPTH	3.0	FT	3.0	FT	ROUTED DEPTH	3.0	FT	3.0	FT
22:05:00	13.27	0.00	5	3981	22:05:00	3.89	6.71	5	3179
22:10:00	13.19	0.00	5	3957	22:10:00	3.88	6.66	5	3162
22:15:00	13.11	0.00	5	3934	22:15:00	3.87	6.62	5	3146
22:20:00	13.04	0.00	5	3911	22:20:00	3.86	6.58	5	3130
22:25:00	12.97	0.00	5	3890	22:25:00	3.85	6.54	5	3114
22:30:00	12.89	0.00	5	3868	22:30:00	3.84	6.50	5	3099
22:35:00	12.82	0.00	5	3847	22:35:00	3.83	6.46	5	3085
22:40:00	12.75	0.00	5	3826	22:40:00	3.82	6.42	5	3071
22:45:00	12.69	0.00	5	3806	22:45:00	3.81	6.39	5	3057
22:50:00	12.62	0.00	5	3787	22:50:00	3.80	6.35	5	3044
22:55:00	12.56	0.00	5	3767	22:55:00	3.79	6.32	5	3031
23:00:00	12.50	0.00	5	3749	23:00:00	3.78	6.28	5	3019
23:05:00	12.43	0.00	5	3730	23:05:00	3.77	6.25	5	3007
23:10:00	12.37	0.00	5	3712	23:10:00	3.76	6.22	5	2996
23:15:00	12.32	0.00	5	3695	23:15:00	3.75	6.19	5	2984
23:20:00	12.26	0.00	5	3677	23:20:00	3.75	6.17	5	2973
23:25:00	12.20	0.00	5	3661	23:25:00	3.74	6.14	5	2963
23:30:00	12.15	0.00	5	3644	23:30:00	3.73	6.11	5	2953
23:35:00	12.09	0.00	5	3628	23:35:00	3.73	6.09	5	2943
23:40:00	12.04	0.00	5	3612	23:40:00	3.72	6.06	5	2933
23:45:00	11.99	0.00	5	3597	23:45:00	3.71	6.04	5	2924
23:50:00	11.94	0.00	5	3581	23:50:00	3.71	6.01	5	2915
23:55:00	11.89	0.00	5	3567	23:55:00	3.70	5.99	5	2907
0:00:00	11.84	0.00	5	3552	0:00:00	3.69	5.97	5	2898
0:05:00	11.79	0.00	5	3537	0:05:00	3.69	5.95	5	2890
0:10:00	11.74	0.00	5	3522	0:10:00	3.68	5.92	5	2880
0:15:00	11.69	0.00	5	3507	0:15:00	3.67	5.89	5	2870
0:20:00	11.63	0.00	5	3490	0:20:00	3.66	5.86	5	2858
0:25:00	11.57	0.00	5	3472	0:25:00	3.65	5.83	5	2845
0:30:00	11.51	0.00	5	3452	0:30:00	3.64	5.79	5	2829
0:35:00	11.44	0.00	5	3431	0:35:00	3.63	5.74	5	2811
0:40:00	11.36	0.00	5	3409	0:40:00	3.62	5.69	5	2792
0:45:00	11.29	0.00	5	3386	0:45:00	3.60	5.64	5	2772
0:50:00	11.21	0.00	5	3363	0:50:00	3.59	5.59	5	2752
0:55:00	11.13	0.00	5	3339	0:55:00	3.57	5.53	5	2730
1:00:00	11.05	0.00	5	3315	1:00:00	3.56	5.47	5	2708
1:05:00	10.97	0.00	5	3291	1:05:00	3.54	5.41	5	2685
1:10:00	10.89	0.00	5	3266	1:10:00	3.52	5.35	5	2663
1:15:00	10.80	0.00	5	3241	1:15:00	3.50	5.29	5	2639
1:20:00	10.72	0.00	5	3216	1:20:00	3.49	5.23	5	2616
1:25:00	10.64	0.00	5	3191	1:25:00	3.47	5.17	5	2593
1:30:00	10.55	0.00	5	3166	1:30:00	3.45	5.11	5	2569
1:35:00	10.47	0.00	5	3141	1:35:00	3.44	5.05	5	2546
1:40:00	10.39	0.00	5	3116	1:40:00	3.42	4.99	5	2522
1:45:00	10.30	0.00	5	3090	1:45:00	3.40	4.93	5	2498
1:50:00	10.22	0.00	5	3065	1:50:00	3.38	4.87	5	2475
1:55:00	10.13	0.00	5	3040	1:55:00	3.36	4.81	5	2451
2:00:00	10.05	0.00	5	3015	2:00:00	3.35	4.75	5	2428
2:05:00	9.97	0.00	5	2990	2:05:00	3.33	4.69	5	2405
2:10:00	9.89	0.00	5	2966	2:10:00	3.31	4.63	5	2381
2:15:00	9.80	0.00	5	2941	2:15:00	3.29	4.57	5	2358
2:20:00	9.72	0.00	5	2917	2:20:00	3.28	4.51	5	2336
2:25:00	9.64	0.00	5	2892	2:25:00	3.26	4.45	5	2313

ITERATIONS TO ACHIEVE VOLUME-TIME CRITERIA
CRITICAL TIME

	RUN	UNITS	GOALS	UNITS		RUN	UNITS	GOALS	UNITS
MODEL	VTFE0003	NA	NA	NA	MODEL	VTFE0004	NA	NA	NA
POND VOL @ 3 FT	25.5	AC-FT	NA	NA	POND VOL @ 8 FT	25.5	AC-FT	NA	NA
WEIR 1 ANGLE	85.0	DEGREES	NA	NA	WEIR 1 ANGLE	25	DEGREES	NA	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0	FT	NA	NA
WEIR 2 ANGLE	0.0	DEGREES	NA	NA	WEIR 2 ANGLE	140.0	DEGREES	NA	NA
WEIR 2 HEIGHT	0.0	FT	NA	NA	WEIR 2 HEIGHT	1.2	FT	NA	NA
VOL. CRIT. TIME	13.4	AC-FT	14.1	AC-FT	VOL. CRIT. TIME	13.1	AC-FT	14.1	AC-FT
PEAK FLOW	35.0	CFS	57	CFS	PEAK FLOW	38.3	CFS	57	CFS
ROUTED DEPTH	3.0	FT	3.0	FT	ROUTED DEPTH	3.0	FT	3.0	FT
2:30:00	9.56	0.00	5	2868	2:30:00	3.24	4.39	5	2290
2:35:00	9.48	0.00	5	2844	2:35:00	3.22	4.34	5	2268
2:40:00	9.40	0.00	5	2820	2:40:00	3.21	4.28	5	2246
2:45:00	9.32	0.00	5	2797	2:45:00	3.19	4.23	5	2224
2:50:00	9.24	0.00	5	2773	2:50:00	3.17	4.17	5	2202
2:55:00	9.17	0.00	5	2750	2:55:00	3.15	4.11	5	2180
3:00:00	9.09	0.00	5	2727	3:00:00	3.14	4.06	5	2159
3:05:00	9.01	0.00	5	2704	3:05:00	3.12	4.01	5	2138
3:10:00	8.94	0.00	5	2681	3:10:00	3.10	3.95	5	2117
3:15:00	8.86	0.00	5	2659	3:15:00	3.09	3.90	5	2096
3:20:00	8.79	0.00	5	2637	3:20:00	3.07	3.85	5	2076
3:25:00	8.72	0.00	5	2615	3:25:00	3.05	3.80	5	2056
3:30:00	8.64	0.00	5	2593	3:30:00	3.04	3.75	5	2036
3:35:00	8.57	0.00	5	2571	3:35:00	3.02	3.70	5	2016
3:40:00	8.50	0.00	5	2549	3:40:00	3.01	3.65	5	1997
3:45:00	8.43	0.00	5	2528	3:45:00	2.99	3.60	5	1977
3:50:00	8.36	0.00	5	2507	3:50:00	2.97	3.55	5	1958
3:55:00	8.29	0.00	5	2486	3:55:00	2.96	3.51	5	1940
4:00:00	8.22	0.00	5	2466	4:00:00	2.94	3.46	5	1921
4:05:00	8.15	0.00	5	2445	4:05:00	2.93	3.41	5	1903
4:10:00	8.08	0.00	5	2425	4:10:00	2.91	3.37	5	1884
4:15:00	8.02	0.00	5	2405	4:15:00	2.90	3.32	5	1867
4:20:00	7.95	0.00	5	2385	4:20:00	2.88	3.28	5	1849
4:25:00	7.89	0.00	5	2366	4:25:00	2.87	3.24	5	1831
4:30:00	7.82	0.00	5	2346	4:30:00	2.85	3.19	5	1814
4:35:00	7.76	0.00	5	2327	4:35:00	2.84	3.15	5	1797
4:40:00	7.69	0.00	5	2308	4:40:00	2.83	3.11	5	1781
4:45:00	7.63	0.00	5	2289	4:45:00	2.81	3.07	5	1764
4:50:00	7.57	0.00	5	2271	4:50:00	2.80	3.03	5	1748
4:55:00	7.51	0.00	5	2252	4:55:00	2.78	2.99	5	1732
5:00:00	7.45	0.00	5	2234	5:00:00	2.77	2.95	5	1715
5:05:00	7.39	0.00	5	2216	5:05:00	2.76	2.91	5	1700
5:10:00	7.33	0.00	5	2198	5:10:00	2.74	2.87	5	1684
5:15:00	7.27	0.00	5	2181	5:15:00	2.73	2.84	5	1669
5:20:00	7.21	0.00	5	2163	5:20:00	2.72	2.80	5	1654
5:25:00	7.15	0.00	5	2146	5:25:00	2.70	2.76	5	1639
5:30:00	7.10	0.00	5	2129	5:30:00	2.69	2.73	5	1624
5:35:00	7.04	0.00	5	2112	5:35:00	2.68	2.69	5	1610
5:40:00	6.98	0.00	5	2095	5:40:00	2.66	2.65	5	1595
5:45:00	6.93	0.00	5	2079	5:45:00	2.65	2.62	5	1581
5:50:00	6.88	0.00	5	2063	5:50:00	2.64	2.59	5	1567
5:55:00	6.82	0.00	5	2046	5:55:00	2.63	2.55	5	1553
6:00:00	6.77	0.00	5	2030	6:00:00	2.61	2.52	5	1540
6:05:00	6.72	0.00	5	2015	6:05:00	2.60	2.49	5	1526
6:10:00	6.66	0.00	5	1999	6:10:00	2.59	2.46	5	1513
6:15:00	6.61	0.00	5	1983	6:15:00	2.58	2.42	5	1500
6:20:00	6.56	0.00	5	1968	6:20:00	2.57	2.39	5	1487
6:25:00	6.51	0.00	5	1953	6:25:00	2.55	2.36	5	1474
6:30:00	6.46	0.00	5	1938	6:30:00	2.54	2.33	5	1462
6:35:00	6.41	0.00	5	1923	6:35:00	2.53	2.30	5	1449
6:40:00	6.36	0.00	5	1908	6:40:00	2.52	2.27	5	1437
6:45:00	6.31	0.00	5	1894	6:45:00	2.51	2.24	5	1425
6:50:00	6.26	0.00	5	1879	6:50:00	2.50	2.21	5	1413

ITERATIONS TO ACHIEVE VOLUME-TIME CRITERIA

CRITICAL TIME

	RUN	UNITS	GOALS	UNITS		RUN	UNITS	GOALS	UNITS
MODEL	VTFE0003	NA	NA	NA	MODEL	VTFE0004	NA	NA	NA
POND VOL @ 3 FT	25.5	AC-FT	NA	NA	POND VOL @ 8 FT	25.5	AC-FT	NA	NA
WEIR 1 ANGLE	85.0	DEGREES	NA	NA	WEIR 1 ANGLE	25	DEGREES	NA	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0	FT	NA	NA
WEIR 2 ANGLE	0.0	DEGREES	NA	NA	WEIR 2 ANGLE	140.0	DEGREES	NA	NA
WEIR 2 HEIGHT	0.0	FT	NA	NA	WEIR 2 HEIGHT	1.2	FT	NA	NA
VOL. CRIT. TIME	13.4	AC-FT	14.1	AC-FT	VOL. CRIT. TIME	13.1	AC-FT	14.1	AC-FT
PEAK FLOW	35.0	CFS	57	CFS	PEAK FLOW	38.3	CFS	57	CFS
ROUTED DEPTH	3.0	FT	3.0	FT	ROUTED DEPTH	3.0	FT	3.0	FT
	DURATION					DURATION			
	DISCHARGE FROM WEIR 1	DISCHARGE FROM WEIR 2	OF DISCHARGE	VOLUME DISCHARGE		DISCHARGE FROM WEIR 1	DISCHARGE FROM WEIR 2	OF DISCHARGE	VOLUME DISCHARGE
TIME	(CFS)	(CFS)	(MIN)	(CF)	TIME	(CFS)	(CFS)	(MIN)	(CF)
6:55:00	6.22	0.00	5	1865	6:55:00	2.49	2.19	5	1401
7:00:00	6.17	0.00	5	1851	7:00:00	2.47	2.16	5	1389
7:05:00	6.12	0.00	5	1837	7:05:00	2.46	2.13	5	1378
7:10:00	6.08	0.00	5	1823	7:10:00	2.45	2.10	5	1366
7:15:00	6.03	0.00	5	1810	7:15:00	2.44	2.08	5	1355
7:20:00	5.99	0.00	5	1796	7:20:00	2.43	2.05	5	1344
7:25:00	5.94	0.00	5	1783	7:25:00	2.42	2.02	5	1333
7:30:00	5.90	0.00	5	1769	7:30:00	2.41	2.00	5	1322
7:35:00	5.85	0.00	5	1756	7:35:00	2.40	1.97	5	1312
7:40:00	5.81	0.00	5	1743	7:40:00	2.39	1.95	5	1301
7:45:00	5.77	0.00	5	1730	7:45:00	2.38	1.92	5	1291
7:50:00	5.73	0.00	5	1718	7:50:00	2.37	1.90	5	1280
7:55:00	5.68	0.00	5	1705	7:55:00	2.36	1.88	5	1270
8:00:00	5.64	0.00	5	1693	8:00:00	2.35	1.85	5	1260



Appendix B

Verification of Flows for the 25-, 10-, and 2-Year, 24-Hour Design Storms

VERIFICATION OF FLOWS FOR THE 25-, 10-, AND 2-YEAR, 24-HOUR DESIGN STORMS
CRITICAL TIME

2-YEAR, 24-HOUR DESIGN STORM				2-YEAR, 24-HOUR DESIGN STORM				2-YEAR, 24-HOUR DESIGN STORM				
	RUN	UNITS	GOALS		RUN	UNITS	GOALS		RUN	UNITS	GOALS	UNITS
MODEL	VTFE0201	NA	NA	NA	MODEL	VTFE0202	NA	NA	MODEL	VTFE0203	NA	NA
POND VOL @ 8 FT	25.5	AC-FT	NA	NA	POND VOL @ 8 FT	25.5	AC-FT	NA	POND VOL @ 8 FT	25.5	AC-FT	NA
WEIR 1 ANGLE	85.0	DEGREES	NA	NA	WEIR 1 ANGLE	25.0	DEGREES	NA	WEIR 1 ANGLE	25.0	DEGREES	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0.0	FT	NA	WEIR 1 HEIGHT	0.0	FT	NA
WEIR 2 ANGLE	0.0	DEGREES	NA	NA	WEIR 2 ANGLE	0.0	DEGREES	NA	WEIR 2 ANGLE	140.0	DEGREES	NA
WEIR 2 HEIGHT	0.0	FT	NA	NA	WEIR 2 HEIGHT	0.0	FT	NA	WEIR 2 HEIGHT	1.2	FT	NA
VOL. CRIT. TIME	1.0	AC-FT	0.3	AC-FT	VOL. CRIT. TIME	0.3	AC-FT	0.3	AC-FT	VOL. CRIT. TIME	0.3	AC-FT
PEAK FLOW	2.4	CFS	5	CFS	PEAK FLOW	0.8	CFS	5	CFS	PEAK FLOW	0.8	CFS
ROUTED DEPTH	1.0	FT	3.0	FT	ROUTED DEPTH	1.2	FT	3.0	FT	ROUTED DEPTH	1.2	FT
DURATION				DURATION				DURATION				
DISCHARGE FROM WEIR 1 DISCHARGE FROM WEIR 2 OF VOLUME				DISCHARGE FROM WEIR 1 DISCHARGE FROM WEIR 2 OF VOLUME				DISCHARGE FROM WEIR 1 DISCHARGE FROM WEIR 2 OF VOLUME				
TIME	(CFS)	(CFS)	(MIN)	DISCHARGE	TIME	(CFS)	(CFS)	(MIN)	DISCHARGE	TIME	(CFS)	(CFS)
0:00:00	0.00	0.00	0	0	0:00:00	0.00	0.00	0	0	0:00:00	0.00	0.00
0:05:00	0.00	0.00	5	0	0:05:00	0.00	0.00	5	0	0:05:00	0.00	0.00
0:10:00	0.00	0.00	5	0	0:10:00	0.00	0.00	5	0	0:10:00	0.00	0.00
0:15:00	0.00	0.00	5	0	0:15:00	0.00	0.00	5	0	0:15:00	0.00	0.00
0:20:00	0.00	0.00	5	0	0:20:00	0.00	0.00	5	0	0:20:00	0.00	0.00
0:25:00	0.00	0.00	5	0	0:25:00	0.00	0.00	5	0	0:25:00	0.00	0.00
0:30:00	0.00	0.00	5	0	0:30:00	0.00	0.00	5	0	0:30:00	0.00	0.00
0:35:00	0.00	0.00	5	0	0:35:00	0.00	0.00	5	0	0:35:00	0.00	0.00
0:40:00	0.00	0.00	5	0	0:40:00	0.00	0.00	5	0	0:40:00	0.00	0.00
0:45:00	0.00	0.00	5	0	0:45:00	0.00	0.00	5	0	0:45:00	0.00	0.00
0:50:00	0.00	0.00	5	0	0:50:00	0.00	0.00	5	0	0:50:00	0.00	0.00
0:55:00	0.00	0.00	5	0	0:55:00	0.00	0.00	5	0	0:55:00	0.00	0.00
1:00:00	0.00	0.00	5	0	1:00:00	0.00	0.00	5	0	1:00:00	0.00	0.00
1:05:00	0.00	0.00	5	0	1:05:00	0.00	0.00	5	0	1:05:00	0.00	0.00
1:10:00	0.00	0.00	5	0	1:10:00	0.00	0.00	5	0	1:10:00	0.00	0.00
1:15:00	0.00	0.00	5	0	1:15:00	0.00	0.00	5	0	1:15:00	0.00	0.00
1:20:00	0.00	0.00	5	0	1:20:00	0.00	0.00	5	0	1:20:00	0.00	0.00
1:25:00	0.00	0.00	5	0	1:25:00	0.00	0.00	5	0	1:25:00	0.00	0.00
1:30:00	0.00	0.00	5	0	1:30:00	0.00	0.00	5	0	1:30:00	0.00	0.00
1:35:00	0.00	0.00	5	0	1:35:00	0.00	0.00	5	0	1:35:00	0.00	0.00
1:40:00	0.00	0.00	5	0	1:40:00	0.00	0.00	5	0	1:40:00	0.00	0.00
1:45:00	0.00	0.00	5	0	1:45:00	0.00	0.00	5	0	1:45:00	0.00	0.00
1:50:00	0.00	0.00	5	0	1:50:00	0.00	0.00	5	0	1:50:00	0.00	0.00
1:55:00	0.00	0.00	5	0	1:55:00	0.00	0.00	5	0	1:55:00	0.00	0.00
2:00:00	0.00	0.00	5	0	2:00:00	0.00	0.00	5	0	2:00:00	0.00	0.00
2:05:00	0.00	0.00	5	0	2:05:00	0.00	0.00	5	0	2:05:00	0.00	0.00
2:10:00	0.00	0.00	5	0	2:10:00	0.00	0.00	5	0	2:10:00	0.00	0.00
2:15:00	0.00	0.00	5	0	2:15:00	0.00	0.00	5	0	2:15:00	0.00	0.00
2:20:00	0.00	0.00	5	0	2:20:00	0.00	0.00	5	0	2:20:00	0.00	0.00
2:25:00	0.00	0.00	5	0	2:25:00	0.00	0.00	5	0	2:25:00	0.00	0.00
2:30:00	0.00	0.00	5	0	2:30:00	0.00	0.00	5	0	2:30:00	0.00	0.00
2:35:00	0.00	0.00	5	0	2:35:00	0.00	0.00	5	0	2:35:00	0.00	0.00
2:40:00	0.00	0.00	5	0	2:40:00	0.00	0.00	5	0	2:40:00	0.00	0.00
2:45:00	0.00	0.00	5	0	2:45:00	0.00	0.00	5	0	2:45:00	0.00	0.00
2:50:00	0.00	0.00	5	0	2:50:00	0.00	0.00	5	0	2:50:00	0.00	0.00
2:55:00	0.00	0.00	5	0	2:55:00	0.00	0.00	5	0	2:55:00	0.00	0.00

VERIFICATION OF FLOWS FOR THE 25-, 10-, AND 2-YEAR, 24-HOUR DESIGN STORMS
CRITICAL TIME

2-YEAR, 24-HOUR DESIGN STORM					2-YEAR, 24-HOUR DESIGN STORM					2-YEAR, 24-HOUR DESIGN STORM				
	RUN	UNITS	GOALS	UNITS		RUN	UNITS	GOALS	UNITS		RUN	UNITS	GOALS	UNITS
MODEL	VTFE0201	NA	NA	NA	MODEL	VTFE0202	NA	NA	NA	MODEL	VTFE0203	NA	NA	NA
POND VOL @ 8 FT	25.5	AC-FT	NA	NA	POND VOL @ 8 FT	25.5	AC-FT	NA	NA	POND VOL @ 8 FT	25.5	AC-FT	NA	NA
WEIR 1 ANGLE	85.0	DEGREES	NA	NA	WEIR 1 ANGLE	25.0	DEGREES	NA	NA	WEIR 1 ANGLE	25.0	DEGREES	NA	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0.0	FT	NA	NA
WEIR 2 ANGLE	0.0	DEGREES	NA	NA	WEIR 2 ANGLE	0.0	DEGREES	NA	NA	WEIR 2 ANGLE	140.0	DEGREES	NA	NA
WEIR 2 HEIGHT	0.0	FT	NA	NA	WEIR 2 HEIGHT	0.0	FT	NA	NA	WEIR 2 HEIGHT	1.2	FT	NA	NA
VOL. CRIT. TIME	1.0	AC-FT	0.3	AC-FT	VOL. CRIT. TIME	0.3	AC-FT	0.3	AC-FT	VOL. CRIT. TIME	0.3	AC-FT	0.3	AC-FT
PEAK FLOW	2.4	CFS	5	CFS	PEAK FLOW	0.8	CFS	5	CFS	PEAK FLOW	0.8	CFS	5	CFS
ROUTED DEPTH	1.0	FT	3.0	FT	ROUTED DEPTH	1.2	FT	3.0	FT	ROUTED DEPTH	1.2	FT	3.0	FT
3:00:00	0.00	0.00	5	0	3:00:00	0.00	0.00	5	0	3:00:00	0.00	0.00	5	0
3:05:00	0.00	0.00	5	0	3:05:00	0.00	0.00	5	0	3:05:00	0.00	0.00	5	0
3:10:00	0.00	0.00	5	0	3:10:00	0.00	0.00	5	0	3:10:00	0.00	0.00	5	0
3:15:00	0.00	0.00	5	0	3:15:00	0.00	0.00	5	0	3:15:00	0.00	0.00	5	0
3:20:00	0.00	0.00	5	0	3:20:00	0.00	0.00	5	0	3:20:00	0.00	0.00	5	0
3:25:00	0.00	0.00	5	0	3:25:00	0.00	0.00	5	0	3:25:00	0.00	0.00	5	0
3:30:00	0.00	0.00	5	0	3:30:00	0.00	0.00	5	0	3:30:00	0.00	0.00	5	0
3:35:00	0.00	0.00	5	0	3:35:00	0.00	0.00	5	0	3:35:00	0.00	0.00	5	0
3:40:00	0.00	0.00	5	0	3:40:00	0.00	0.00	5	0	3:40:00	0.00	0.00	5	0
3:45:00	0.00	0.00	5	0	3:45:00	0.00	0.00	5	0	3:45:00	0.00	0.00	5	0
3:50:00	0.00	0.00	5	0	3:50:00	0.00	0.00	5	0	3:50:00	0.00	0.00	5	0
3:55:00	0.00	0.00	5	0	3:55:00	0.00	0.00	5	0	3:55:00	0.00	0.00	5	0
4:00:00	0.00	0.00	5	0	4:00:00	0.00	0.00	5	0	4:00:00	0.00	0.00	5	0
4:05:00	0.00	0.00	5	0	4:05:00	0.00	0.00	5	0	4:05:00	0.00	0.00	5	0
4:10:00	0.00	0.00	5	0	4:10:00	0.00	0.00	5	0	4:10:00	0.00	0.00	5	0
4:15:00	0.00	0.00	5	0	4:15:00	0.00	0.00	5	0	4:15:00	0.00	0.00	5	0
4:20:00	0.00	0.00	5	0	4:20:00	0.00	0.00	5	0	4:20:00	0.00	0.00	5	0
4:25:00	0.00	0.00	5	0	4:25:00	0.00	0.00	5	0	4:25:00	0.00	0.00	5	0
4:30:00	0.00	0.00	5	0	4:30:00	0.00	0.00	5	0	4:30:00	0.00	0.00	5	0
4:35:00	0.00	0.00	5	0	4:35:00	0.00	0.00	5	0	4:35:00	0.00	0.00	5	0
4:40:00	0.00	0.00	5	0	4:40:00	0.00	0.00	5	0	4:40:00	0.00	0.00	5	0
4:45:00	0.00	0.00	5	0	4:45:00	0.00	0.00	5	0	4:45:00	0.00	0.00	5	0
4:50:00	0.00	0.00	5	0	4:50:00	0.00	0.00	5	0	4:50:00	0.00	0.00	5	0
4:55:00	0.00	0.00	5	0	4:55:00	0.00	0.00	5	0	4:55:00	0.00	0.00	5	0
5:00:00	0.00	0.00	5	0	5:00:00	0.00	0.00	5	0	5:00:00	0.00	0.00	5	0
5:05:00	0.00	0.00	5	0	5:05:00	0.00	0.00	5	0	5:05:00	0.00	0.00	5	0
5:10:00	0.00	0.00	5	0	5:10:00	0.00	0.00	5	0	5:10:00	0.00	0.00	5	0
5:15:00	0.00	0.00	5	0	5:15:00	0.00	0.00	5	0	5:15:00	0.00	0.00	5	0
5:20:00	0.00	0.00	5	0	5:20:00	0.00	0.00	5	0	5:20:00	0.00	0.00	5	0
5:25:00	0.00	0.00	5	0	5:25:00	0.00	0.00	5	0	5:25:00	0.00	0.00	5	0
5:30:00	0.00	0.00	5	0	5:30:00	0.00	0.00	5	0	5:30:00	0.00	0.00	5	0
5:35:00	0.00	0.00	5	0	5:35:00	0.00	0.00	5	0	5:35:00	0.00	0.00	5	0
5:40:00	0.00	0.00	5	0	5:40:00	0.00	0.00	5	0	5:40:00	0.00	0.00	5	0
5:45:00	0.00	0.00	5	0	5:45:00	0.00	0.00	5	0	5:45:00	0.00	0.00	5	0
5:50:00	0.00	0.00	5	0	5:50:00	0.00	0.00	5	0	5:50:00	0.00	0.00	5	0
5:55:00	0.00	0.00	5	0	5:55:00	0.00	0.00	5	0	5:55:00	0.00	0.00	5	0
6:00:00	0.00	0.00	5	0	6:00:00	0.00	0.00	5	0	6:00:00	0.00	0.00	5	0
6:05:00	0.00	0.00	5	0	6:05:00	0.00	0.00	5	0	6:05:00	0.00	0.00	5	0
6:10:00	0.00	0.00	5	0	6:10:00	0.00	0.00	5	0	6:10:00	0.00	0.00	5	0
6:15:00	0.00	0.00	5	0	6:15:00	0.00	0.00	5	0	6:15:00	0.00	0.00	5	0

VERIFICATION OF FLOWS FOR THE 25-, 10-, AND 2-YEAR, 24-HOUR DESIGN STORMS
CRITICAL TIME

2-YEAR, 24-HOUR DESIGN STORM					2-YEAR, 24-HOUR DESIGN STORM					2-YEAR, 24-HOUR DESIGN STORM				
	RUN	UNITS	GOALS	UNITS		RUN	UNITS	GOALS	UNITS		RUN	UNITS	GOALS	UNITS
MODEL	VTFE0201	NA	NA	NA	MODEL	VTFE0202	NA	NA	NA	MODEL	VTFE0203	NA	NA	NA
POND VOL @ 8 FT	25.5	AC-FT	NA	NA	POND VOL @ 8 FT	25.5	AC-FT	NA	NA	POND VOL @ 8 FT	25.5	AC-FT	NA	NA
WEIR 1 ANGLE	85.0	DEGREES	NA	NA	WEIR 1 ANGLE	25.0	DEGREES	NA	NA	WEIR 1 ANGLE	25.0	DEGREES	NA	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0.0	FT	NA	NA
WEIR 2 ANGLE	0.0	DEGREES	NA	NA	WEIR 2 ANGLE	0.0	DEGREES	NA	NA	WEIR 2 ANGLE	140.0	DEGREES	NA	NA
WEIR 2 HEIGHT	0.0	FT	NA	NA	WEIR 2 HEIGHT	0.0	FT	NA	NA	WEIR 2 HEIGHT	1.2	FT	NA	NA
VOL. CRIT. TIME	1.0	AC-FT	0.3	AC-FT	VOL. CRIT. TIME	0.3	AC-FT	0.3	AC-FT	VOL. CRIT. TIME	0.3	AC-FT	0.3	AC-FT
PEAK FLOW	2.4	CFS	5	CFS	PEAK FLOW	0.8	CFS	5	CFS	PEAK FLOW	0.8	CFS	5	CFS
ROUTED DEPTH	1.0	FT	3.0	FT	ROUTED DEPTH	1.2	FT	3.0	FT	ROUTED DEPTH	1.2	FT	3.0	FT
6:20:00	0.00	0.00	5	0	6:20:00	0.00	0.00	5	0	6:20:00	0.00	0.00	5	0
6:25:00	0.00	0.00	5	0	6:25:00	0.00	0.00	5	0	6:25:00	0.00	0.00	5	0
6:30:00	0.00	0.00	5	0	6:30:00	0.00	0.00	5	0	6:30:00	0.00	0.00	5	0
6:35:00	0.00	0.00	5	1	6:35:00	0.00	0.00	5	0	6:35:00	0.00	0.00	5	0
6:40:00	0.00	0.00	5	1	6:40:00	0.00	0.00	5	0	6:40:00	0.00	0.00	5	0
6:45:00	0.00	0.00	5	1	6:45:00	0.00	0.00	5	0	6:45:00	0.00	0.00	5	0
6:50:00	0.00	0.00	5	1	6:50:00	0.00	0.00	5	0	6:50:00	0.00	0.00	5	0
6:55:00	0.00	0.00	5	1	6:55:00	0.00	0.00	5	0	6:55:00	0.00	0.00	5	0
7:00:00	0.00	0.00	5	1	7:00:00	0.00	0.00	5	0	7:00:00	0.00	0.00	5	0
7:05:00	0.00	0.00	5	1	7:05:00	0.00	0.00	5	0	7:05:00	0.00	0.00	5	0
7:10:00	0.00	0.00	5	1	7:10:00	0.00	0.00	5	0	7:10:00	0.00	0.00	5	0
7:15:00	0.00	0.00	5	1	7:15:00	0.00	0.00	5	0	7:15:00	0.00	0.00	5	0
7:20:00	0.00	0.00	5	1	7:20:00	0.00	0.00	5	0	7:20:00	0.00	0.00	5	0
7:25:00	0.00	0.00	5	1	7:25:00	0.00	0.00	5	0	7:25:00	0.00	0.00	5	0
7:30:00	0.00	0.00	5	1	7:30:00	0.00	0.00	5	0	7:30:00	0.00	0.00	5	0
7:35:00	0.00	0.00	5	1	7:35:00	0.00	0.00	5	0	7:35:00	0.00	0.00	5	0
7:40:00	0.00	0.00	5	1	7:40:00	0.00	0.00	5	0	7:40:00	0.00	0.00	5	0
7:45:00	0.00	0.00	5	1	7:45:00	0.00	0.00	5	0	7:45:00	0.00	0.00	5	0
7:50:00	0.00	0.00	5	1	7:50:00	0.00	0.00	5	0	7:50:00	0.00	0.00	5	0
7:55:00	0.01	0.00	5	2	7:55:00	0.00	0.00	5	0	7:55:00	0.00	0.00	5	0
8:00:00	0.01	0.00	5	2	8:00:00	0.00	0.00	5	0	8:00:00	0.00	0.00	5	0
8:05:00	0.01	0.00	5	2	8:05:00	0.00	0.00	5	0	8:05:00	0.00	0.00	5	0
8:10:00	0.01	0.00	5	2	8:10:00	0.00	0.00	5	0	8:10:00	0.00	0.00	5	0
8:15:00	0.01	0.00	5	2	8:15:00	0.00	0.00	5	0	8:15:00	0.00	0.00	5	0
8:20:00	0.01	0.00	5	2	8:20:00	0.00	0.00	5	1	8:20:00	0.00	0.00	5	0
8:25:00	0.01	0.00	5	2	8:25:00	0.00	0.00	5	1	8:25:00	0.00	0.00	5	0
8:30:00	0.01	0.00	5	2	8:30:00	0.00	0.00	5	1	8:30:00	0.00	0.00	5	0
8:35:00	0.01	0.00	5	2	8:35:00	0.00	0.00	5	1	8:35:00	0.00	0.00	5	1
8:40:00	0.01	0.00	5	2	8:40:00	0.00	0.00	5	1	8:40:00	0.00	0.00	5	1
8:45:00	0.01	0.00	5	2	8:45:00	0.00	0.00	5	1	8:45:00	0.00	0.00	5	1
8:50:00	0.01	0.00	5	3	8:50:00	0.00	0.00	5	1	8:50:00	0.00	0.00	5	1
8:55:00	0.01	0.00	5	3	8:55:00	0.00	0.00	5	1	8:55:00	0.00	0.00	5	1
9:00:00	0.01	0.00	5	3	9:00:00	0.00	0.00	5	1	9:00:00	0.00	0.00	5	1
9:05:00	0.01	0.00	5	3	9:05:00	0.00	0.00	5	1	9:05:00	0.00	0.00	5	1
9:10:00	0.01	0.00	5	3	9:10:00	0.00	0.00	5	1	9:10:00	0.00	0.00	5	1
9:15:00	0.01	0.00	5	4	9:15:00	0.00	0.00	5	1	9:15:00	0.00	0.00	5	1
9:20:00	0.01	0.00	5	4	9:20:00	0.00	0.00	5	1	9:20:00	0.00	0.00	5	1
9:25:00	0.01	0.00	5	4	9:25:00	0.00	0.00	5	1	9:25:00	0.00	0.00	5	1
9:30:00	0.01	0.00	5	4	9:30:00	0.00	0.00	5	1	9:30:00	0.00	0.00	5	1
9:35:00	0.01	0.00	5	4	9:35:00	0.00	0.00	5	1	9:35:00	0.00	0.00	5	1

VERIFICATION OF FLOWS FOR THE 25-, 10-, AND 2-YEAR, 24-HOUR DESIGN STORMS
 CRITICAL TIME

	10-YEAR, 24-HOUR DESIGN STORM				25-YEAR, 24-HOUR DESIGN STORM			
	RUN	UNITS	GOALS	UNITS	RUN	UNITS	GOALS	UNITS
MODEL	VTFE1001	NA	NA	NA	MODEL	VTFE2501	NA	NA
POND VOL @ 8 FT	25.5	AC-FT	NA	NA	POND VOL @ 8 FT	25.5	AC-FT	NA
WEIR 1 ANGLE	25.0	DEGREES	NA	NA	WEIR 1 ANGLE	25.0	DEGREES	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0.0	FT	NA
WEIR 2 ANGLE	140.0	DEGREES	NA	NA	WEIR 2 ANGLE	140.0	DEGREES	NA
WEIR 2 HEIGHT	1.2	FT	NA	NA	WEIR 2 HEIGHT	1.2	FT	NA
VOL. CRIT. TIME	3.0	AC-FT	4.3	AC-FT	VOL. CRIT. TIME	6.5	AC-FT	8
PEAK FLOW	7.7	CFS	22	CFS	PEAK FLOW	17.8	CFS	35
ROUTED DEPTH	2.0	FT	3.0	FT	ROUTED DEPTH	2.5	FT	3.0
3:00:00	0.00	0.00	5	0	3:00:00	0.00	0.00	5
3:05:00	0.00	0.00	5	0	3:05:00	0.00	0.00	5
3:10:00	0.00	0.00	5	0	3:10:00	0.00	0.00	5
3:15:00	0.00	0.00	5	0	3:15:00	0.00	0.00	5
3:20:00	0.00	0.00	5	0	3:20:00	0.00	0.00	5
3:25:00	0.00	0.00	5	0	3:25:00	0.00	0.00	5
3:30:00	0.00	0.00	5	0	3:30:00	0.00	0.00	5
3:35:00	0.00	0.00	5	0	3:35:00	0.00	0.00	5
3:40:00	0.00	0.00	5	0	3:40:00	0.00	0.00	5
3:45:00	0.00	0.00	5	0	3:45:00	0.00	0.00	5
3:50:00	0.00	0.00	5	0	3:50:00	0.00	0.00	5
3:55:00	0.00	0.00	5	0	3:55:00	0.00	0.00	5
4:00:00	0.00	0.00	5	0	4:00:00	0.00	0.00	5
4:05:00	0.00	0.00	5	0	4:05:00	0.00	0.00	5
4:10:00	0.00	0.00	5	0	4:10:00	0.00	0.00	5
4:15:00	0.00	0.00	5	0	4:15:00	0.00	0.00	5
4:20:00	0.00	0.00	5	0	4:20:00	0.00	0.00	5
4:25:00	0.00	0.00	5	0	4:25:00	0.00	0.00	5
4:30:00	0.00	0.00	5	0	4:30:00	0.00	0.00	5
4:35:00	0.00	0.00	5	0	4:35:00	0.00	0.00	5
4:40:00	0.00	0.00	5	0	4:40:00	0.00	0.00	5
4:45:00	0.00	0.00	5	0	4:45:00	0.00	0.00	5
4:50:00	0.00	0.00	5	0	4:50:00	0.00	0.00	5
4:55:00	0.00	0.00	5	0	4:55:00	0.00	0.00	5
5:00:00	0.00	0.00	5	0	5:00:00	0.00	0.00	5
5:05:00	0.00	0.00	5	0	5:05:00	0.00	0.00	5
5:10:00	0.00	0.00	5	0	5:10:00	0.00	0.00	5
5:15:00	0.00	0.00	5	0	5:15:00	0.00	0.00	5
5:20:00	0.00	0.00	5	0	5:20:00	0.00	0.00	5
5:25:00	0.00	0.00	5	0	5:25:00	0.00	0.00	5
5:30:00	0.00	0.00	5	0	5:30:00	0.00	0.00	5
5:35:00	0.00	0.00	5	0	5:35:00	0.00	0.00	5
5:40:00	0.00	0.00	5	0	5:40:00	0.00	0.00	5
5:45:00	0.00	0.00	5	0	5:45:00	0.00	0.00	5
5:50:00	0.00	0.00	5	0	5:50:00	0.00	0.00	5
5:55:00	0.00	0.00	5	0	5:55:00	0.00	0.00	5
6:00:00	0.00	0.00	5	0	6:00:00	0.00	0.00	5
6:05:00	0.00	0.00	5	0	6:05:00	0.00	0.00	5
6:10:00	0.00	0.00	5	0	6:10:00	0.00	0.00	5
6:15:00	0.00	0.00	5	0	6:15:00	0.00	0.00	5

VERIFICATION OF FLOWS FOR THE 25-, 10-, AND 2-YEAR, 24-HOUR DESIGN STORMS
CRITICAL TIME

10-YEAR, 24-HOUR DESIGN STORM				25-YEAR, 24-HOUR DESIGN STORM				
	RUN	UNITS	GOALS	UNITS	RUN	UNITS	GOALS	UNITS
MODEL	VTFE1001	NA	NA	NA	MODEL	VTFE2501	NA	NA
POND VOL @ 8 FT	25.5	AC-FT	NA	NA	POND VOL @ 8 FT	25.5	AC-FT	NA
WEIR 1 ANGLE	25.0	DEGREES	NA	NA	WEIR 1 ANGLE	25.0	DEGREES	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0.0	FT	NA
WEIR 2 ANGLE	140.0	DEGREES	NA	NA	WEIR 2 ANGLE	140.0	DEGREES	NA
WEIR 2 HEIGHT	1.2	FT	NA	NA	WEIR 2 HEIGHT	1.2	FT	NA
VOL. CRIT. TIME	3.0	AC-FT	4.3	AC-FT	VOL. CRIT. TIME	6.5	AC-FT	8
PEAK FLOW	7.7	CFS	22	CFS	PEAK FLOW	17.8	CFS	35
ROUTED DEPTH	2.0	FT	3.0	FT	ROUTED DEPTH	2.5	FT	3.0
6:20:00	0.00	0.00	5	1	6:20:00	0.00	0.00	5
6:25:00	0.00	0.00	5	1	6:25:00	0.00	0.00	5
6:30:00	0.00	0.00	5	1	6:30:00	0.00	0.00	5
6:35:00	0.00	0.00	5	1	6:35:00	0.00	0.00	5
6:40:00	0.00	0.00	5	1	6:40:00	0.00	0.00	5
6:45:00	0.00	0.00	5	1	6:45:00	0.00	0.00	5
6:50:00	0.00	0.00	5	1	6:50:00	0.00	0.00	5
6:55:00	0.00	0.00	5	1	6:55:00	0.00	0.00	5
7:00:00	0.00	0.00	5	1	7:00:00	0.01	0.00	5
7:05:00	0.00	0.00	5	1	7:05:00	0.01	0.00	5
7:10:00	0.00	0.00	5	1	7:10:00	0.01	0.00	5
7:15:00	0.00	0.00	5	1	7:15:00	0.01	0.00	5
7:20:00	0.00	0.00	5	1	7:20:00	0.01	0.00	5
7:25:00	0.00	0.00	5	1	7:25:00	0.01	0.00	5
7:30:00	0.00	0.00	5	1	7:30:00	0.01	0.00	5
7:35:00	0.00	0.00	5	1	7:35:00	0.01	0.00	5
7:40:00	0.00	0.00	5	1	7:40:00	0.01	0.00	5
7:45:00	0.00	0.00	5	1	7:45:00	0.01	0.00	5
7:50:00	0.01	0.00	5	2	7:50:00	0.01	0.00	5
7:55:00	0.01	0.00	5	2	7:55:00	0.01	0.00	5
8:00:00	0.01	0.00	5	2	8:00:00	0.01	0.00	5
8:05:00	0.01	0.00	5	2	8:05:00	0.01	0.00	5
8:10:00	0.01	0.00	5	2	8:10:00	0.01	0.00	5
8:15:00	0.01	0.00	5	2	8:15:00	0.01	0.00	5
8:20:00	0.01	0.00	5	2	8:20:00	0.01	0.00	5
8:25:00	0.01	0.00	5	2	8:25:00	0.01	0.00	5
8:30:00	0.01	0.00	5	2	8:30:00	0.01	0.00	5
8:35:00	0.01	0.00	5	2	8:35:00	0.01	0.00	5
8:40:00	0.01	0.00	5	2	8:40:00	0.01	0.00	5
8:45:00	0.01	0.00	5	2	8:45:00	0.01	0.00	5
8:50:00	0.01	0.00	5	3	8:50:00	0.01	0.00	5
8:55:00	0.01	0.00	5	3	8:55:00	0.02	0.00	5
9:00:00	0.01	0.00	5	3	9:00:00	0.02	0.00	5
9:05:00	0.01	0.00	5	3	9:05:00	0.02	0.00	5
9:10:00	0.01	0.00	5	3	9:10:00	0.02	0.00	5
9:15:00	0.01	0.00	5	3	9:15:00	0.02	0.00	5
9:20:00	0.01	0.00	5	4	9:20:00	0.02	0.00	5
9:25:00	0.01	0.00	5	4	9:25:00	0.02	0.00	5
9:30:00	0.01	0.00	5	4	9:30:00	0.02	0.00	5
9:35:00	0.01	0.00	5	4	9:35:00	0.02	0.00	5

VERIFICATION OF FLOWS FOR THE 25-, 10-, AND 2-YEAR, 24-HOUR DESIGN STORMS
CRITICAL TIME

10-YEAR, 24-HOUR DESIGN STORM				25-YEAR, 24-HOUR DESIGN STORM				
	RUN	UNITS	GOALS		RUN	UNITS	GOALS	UNITS
MODEL	VTFE1001	NA	NA	NA	MODEL	VTFE2501	NA	NA
POND VOL @ 8 FT	25.5	AC-FT	NA	NA	POND VOL @ 8 FT	25.5	AC-FT	NA
WEIR 1 ANGLE	25.0	DEGREES	NA	NA	WEIR 1 ANGLE	25.0	DEGREES	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0.0	FT	NA
WEIR 2 ANGLE	140.0	DEGREES	NA	NA	WEIR 2 ANGLE	140.0	DEGREES	NA
WEIR 2 HEIGHT	1.2	FT	NA	NA	WEIR 2 HEIGHT	1.2	FT	NA
VOL. CRIT. TIME	3.0	AC-FT	4.3	AC-FT	VOL. CRIT. TIME	6.5	AC-FT	8
PEAK FLOW	7.7	CFS	22	CFS	PEAK FLOW	17.8	CFS	35
ROUTED DEPTH	2.0	FT	3.0	FT	ROUTED DEPTH	2.5	FT	3.0
9:40:00	0.01	0.00	5	4	9:40:00	0.02	0.00	5
9:45:00	0.02	0.00	5	5	9:45:00	0.03	0.00	5
9:50:00	0.02	0.00	5	5	9:50:00	0.03	0.00	5
9:55:00	0.02	0.00	5	5	9:55:00	0.03	0.00	5
10:00:00	0.02	0.00	5	5	10:00:00	0.03	0.00	5
10:05:00	0.02	0.00	5	6	10:05:00	0.03	0.00	5
10:10:00	0.02	0.00	5	6	10:10:00	0.03	0.00	5
10:15:00	0.02	0.00	5	6	10:15:00	0.03	0.00	5
10:20:00	0.02	0.00	5	7	10:20:00	0.04	0.00	5
10:25:00	0.02	0.00	5	7	10:25:00	0.04	0.00	5
10:30:00	0.02	0.00	5	7	10:30:00	0.04	0.00	5
10:35:00	0.03	0.00	5	8	10:35:00	0.04	0.00	5
10:40:00	0.03	0.00	5	8	10:40:00	0.04	0.00	5
10:45:00	0.03	0.00	5	8	10:45:00	0.05	0.00	5
10:50:00	0.03	0.00	5	9	10:50:00	0.05	0.00	5
10:55:00	0.03	0.00	5	10	10:55:00	0.05	0.00	5
11:00:00	0.03	0.00	5	10	11:00:00	0.06	0.00	5
11:05:00	0.04	0.00	5	11	11:05:00	0.06	0.00	5
11:10:00	0.04	0.00	5	12	11:10:00	0.06	0.00	5
11:15:00	0.04	0.00	5	13	11:15:00	0.07	0.00	5
11:20:00	0.05	0.00	5	14	11:20:00	0.07	0.00	5
11:25:00	0.05	0.00	5	15	11:25:00	0.08	0.00	5
11:30:00	0.05	0.00	5	16	11:30:00	0.08	0.00	5
11:35:00	0.06	0.00	5	17	11:35:00	0.09	0.00	5
11:40:00	0.06	0.00	5	19	11:40:00	0.10	0.00	5
11:45:00	0.07	0.00	5	20	11:45:00	0.11	0.00	5
11:50:00	0.08	0.00	5	23	11:50:00	0.12	0.00	5
11:55:00	0.09	0.00	5	28	11:55:00	0.15	0.00	5
12:00:00	0.12	0.00	5	36	12:00:00	0.19	0.00	5
12:05:00	0.17	0.00	5	51	12:05:00	0.28	0.00	5
12:10:00	0.28	0.00	5	83	12:10:00	0.45	0.00	5
12:15:00	0.47	0.00	5	142	12:15:00	0.79	0.00	5
12:20:00	0.74	0.00	5	222	12:20:00	1.26	0.12	5
12:25:00	1.00	0.01	5	302	12:25:00	1.70	0.60	5
12:30:00	1.20	0.09	5	387	12:30:00	2.07	1.24	5
12:35:00	1.37	0.21	5	473	12:35:00	2.37	1.91	5
12:40:00	1.53	0.37	5	569	12:40:00	2.66	2.64	5
12:45:00	1.67	0.55	5	668	12:45:00	2.92	3.39	5
12:50:00	1.81	0.76	5	768	12:50:00	3.16	4.13	5
12:55:00	1.93	0.97	5	872	12:55:00	3.39	4.89	5

VERIFICATION OF FLOWS FOR THE 25-, 10-, AND 2-YEAR, 24-HOUR DESIGN STORMS
CRITICAL TIME

	10-YEAR, 24-HOUR DESIGN STORM				25-YEAR, 24-HOUR DESIGN STORM			
	RUN	UNITS	GOALS	UNITS	RUN	UNITS	GOALS	UNITS
MODEL	VTFE1001	NA	NA	NA	MODEL	VTFE2501	NA	NA
POND VOL @ 8 FT	25.5	AC-FT	NA	NA	POND VOL @ 8 FT	25.5	AC-FT	NA
WEIR 1 ANGLE	25.0	DEGREES	NA	NA	WEIR 1 ANGLE	25.0	DEGREES	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0.0	FT	NA
WEIR 2 ANGLE	140.0	DEGREES	NA	NA	WEIR 2 ANGLE	140.0	DEGREES	NA
WEIR 2 HEIGHT	1.2	FT	NA	NA	WEIR 2 HEIGHT	1.2	FT	NA
VOL. CRIT. TIME	3.0	AC-FT	4.3	AC-FT	VOL. CRIT. TIME	6.5	AC-FT	8
PEAK FLOW	7.7	CFS	22	CFS	PEAK FLOW	17.8	CFS	35
ROUTED DEPTH	2.0	FT	3.0	FT	ROUTED DEPTH	2.5	FT	3.0
13:00:00	2.05	1.20	5	976	13:00:00	3.60	5.63	5
13:05:00	2.17	1.44	5	1080	13:05:00	3.80	6.36	5
13:10:00	2.27	1.67	5	1183	13:10:00	3.98	7.06	5
13:15:00	2.37	1.90	5	1283	13:15:00	4.15	7.72	5
13:20:00	2.46	2.13	5	1379	13:20:00	4.31	8.34	5
13:25:00	2.55	2.36	5	1472	13:25:00	4.45	8.92	5
13:30:00	2.63	2.57	5	1560	13:30:00	4.57	9.45	5
13:35:00	2.71	2.77	5	1644	13:35:00	4.69	9.93	5
13:40:00	2.78	2.97	5	1723	13:40:00	4.79	10.37	5
13:45:00	2.84	3.15	5	1797	13:45:00	4.88	10.77	5
13:50:00	2.90	3.32	5	1865	13:50:00	4.96	11.12	5
13:55:00	2.95	3.48	5	1928	13:55:00	5.03	11.42	5
14:00:00	3.00	3.62	5	1986	14:00:00	5.09	11.68	5
14:05:00	3.04	3.75	5	2038	14:05:00	5.13	11.90	5
14:10:00	3.08	3.87	5	2085	14:10:00	5.17	12.09	5
14:15:00	3.11	3.98	5	2127	14:15:00	5.21	12.23	5
14:20:00	3.14	4.07	5	2165	14:20:00	5.23	12.35	5
14:25:00	3.17	4.16	5	2198	14:25:00	5.25	12.43	5
14:30:00	3.19	4.23	5	2226	14:30:00	5.26	12.49	5
14:35:00	3.21	4.29	5	2251	14:35:00	5.27	12.51	5
14:40:00	3.22	4.34	5	2270	14:40:00	5.27	12.51	5
14:45:00	3.24	4.39	5	2287	14:45:00	5.26	12.49	5
14:50:00	3.25	4.42	5	2300	14:50:00	5.25	12.45	5
14:55:00	3.25	4.44	5	2309	14:55:00	5.24	12.38	5
15:00:00	3.26	4.46	5	2314	15:00:00	5.22	12.30	5
15:05:00	3.26	4.46	5	2318	15:05:00	5.20	12.20	5
15:10:00	3.26	4.47	5	2318	15:10:00	5.18	12.09	5
15:15:00	3.26	4.46	5	2316	15:15:00	5.15	11.97	5
15:20:00	3.26	4.45	5	2313	15:20:00	5.12	11.84	5
15:25:00	3.25	4.44	5	2309	15:25:00	5.09	11.71	5
15:30:00	3.25	4.43	5	2303	15:30:00	5.06	11.57	5
15:35:00	3.24	4.41	5	2295	15:35:00	5.03	11.42	5
15:40:00	3.24	4.39	5	2287	15:40:00	4.99	11.27	5
15:45:00	3.23	4.36	5	2277	15:45:00	4.96	11.11	5
15:50:00	3.22	4.33	5	2267	15:50:00	4.92	10.95	5
15:55:00	3.21	4.31	5	2256	15:55:00	4.88	10.78	5
16:00:00	3.20	4.28	5	2245	16:00:00	4.85	10.62	5
16:05:00	3.20	4.25	5	2234	16:05:00	4.81	10.45	5
16:10:00	3.19	4.22	5	2223	16:10:00	4.77	10.29	5
16:15:00	3.18	4.20	5	2212	16:15:00	4.73	10.13	5

VERIFICATION OF FLOWS FOR THE 25-, 10-, AND 2-YEAR, 24-HOUR DESIGN STORMS
CRITICAL TIME

10-YEAR, 24-HOUR DESIGN STORM				25-YEAR, 24-HOUR DESIGN STORM				
	RUN	UNITS	GOALS		RUN	UNITS	GOALS	UNITS
MODEL	VTFE1001	NA	NA	NA	MODEL	VTFE2501	NA	NA
POND VOL @ 8 FT	25.5	AC-FT	NA	NA	POND VOL @ 8 FT	25.5	AC-FT	NA
WEIR 1 ANGLE	25.0	DEGREES	NA	NA	WEIR 1 ANGLE	25.0	DEGREES	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0.0	FT	NA
WEIR 2 ANGLE	140.0	DEGREES	NA	NA	WEIR 2 ANGLE	140.0	DEGREES	NA
WEIR 2 HEIGHT	1.2	FT	NA	NA	WEIR 2 HEIGHT	1.2	FT	NA
VOL. CRIT. TIME	3.0	AC-FT	4.3	AC-FT	VOL. CRIT. TIME	6.5	AC-FT	8 AC-FT
PEAK FLOW	7.7	CFS	22	CFS	PEAK FLOW	17.8	CFS	35 CFS
ROUTED DEPTH	2.0	FT	3.0	FT	ROUTED DEPTH	2.5	FT	3.0 FT
16:20:00	3.17	4.17	5	2201	16:20:00	4.70	9.97	5 4399
16:25:00	3.16	4.14	5	2191	16:25:00	4.66	9.82	5 4343
16:30:00	3.15	4.11	5	2180	16:30:00	4.62	9.67	5 4287
16:35:00	3.15	4.09	5	2170	16:35:00	4.59	9.52	5 4232
16:40:00	3.14	4.06	5	2159	16:40:00	4.56	9.38	5 4180
16:45:00	3.13	4.04	5	2149	16:45:00	4.52	9.24	5 4128
16:50:00	3.12	4.01	5	2138	16:50:00	4.49	9.10	5 4078
16:55:00	3.11	3.98	5	2128	16:55:00	4.46	8.97	5 4028
17:00:00	3.10	3.95	5	2117	17:00:00	4.43	8.84	5 3979
17:05:00	3.09	3.93	5	2106	17:05:00	4.40	8.70	5 3930
17:10:00	3.09	3.90	5	2095	17:10:00	4.36	8.58	5 3882
17:15:00	3.08	3.87	5	2083	17:15:00	4.33	8.45	5 3835
17:20:00	3.07	3.84	5	2072	17:20:00	4.30	8.33	5 3788
17:25:00	3.06	3.81	5	2061	17:25:00	4.27	8.20	5 3743
17:30:00	3.05	3.78	5	2050	17:30:00	4.24	8.09	5 3699
17:35:00	3.04	3.75	5	2038	17:35:00	4.22	7.97	5 3656
17:40:00	3.03	3.73	5	2027	17:40:00	4.19	7.86	5 3614
17:45:00	3.02	3.70	5	2016	17:45:00	4.16	7.75	5 3572
17:50:00	3.01	3.67	5	2006	17:50:00	4.13	7.64	5 3532
17:55:00	3.00	3.65	5	1995	17:55:00	4.11	7.54	5 3492
18:00:00	3.00	3.62	5	1984	18:00:00	4.08	7.43	5 3454
18:05:00	2.99	3.59	5	1974	18:05:00	4.05	7.33	5 3416
18:10:00	2.98	3.56	5	1963	18:10:00	4.03	7.23	5 3378
18:15:00	2.97	3.54	5	1952	18:15:00	4.00	7.13	5 3341
18:20:00	2.96	3.51	5	1940	18:20:00	3.98	7.03	5 3303
18:25:00	2.95	3.48	5	1929	18:25:00	3.95	6.94	5 3267
18:30:00	2.94	3.45	5	1917	18:30:00	3.93	6.84	5 3230
18:35:00	2.93	3.42	5	1906	18:35:00	3.90	6.75	5 3195
18:40:00	2.92	3.39	5	1895	18:40:00	3.88	6.66	5 3160
18:45:00	2.91	3.37	5	1883	18:45:00	3.85	6.56	5 3125
18:50:00	2.90	3.34	5	1872	18:50:00	3.83	6.48	5 3092
18:55:00	2.89	3.31	5	1861	18:55:00	3.81	6.39	5 3059
19:00:00	2.88	3.28	5	1850	19:00:00	3.78	6.30	5 3026
19:05:00	2.87	3.25	5	1838	19:05:00	3.76	6.22	5 2995
19:10:00	2.87	3.23	5	1828	19:10:00	3.74	6.14	5 2964
19:15:00	2.86	3.20	5	1817	19:15:00	3.72	6.06	5 2933
19:20:00	2.85	3.18	5	1807	19:20:00	3.70	5.98	5 2904
19:25:00	2.84	3.15	5	1796	19:25:00	3.68	5.91	5 2875
19:30:00	2.83	3.12	5	1786	19:30:00	3.66	5.83	5 2846
19:35:00	2.82	3.10	5	1776	19:35:00	3.64	5.76	5 2818

VERIFICATION OF FLOWS FOR THE 25-, 10-, AND 2-YEAR, 24-HOUR DESIGN STORMS
CRITICAL TIME

10-YEAR, 24-HOUR DESIGN STORM				25-YEAR, 24-HOUR DESIGN STORM					
	RUN	UNITS	GOALS	UNITS	RUN	UNITS	GOALS	UNITS	
MODEL	VTFE1001	NA	NA	NA	MODEL	VTFE2501	NA	NA	
POND VOL @ 8 FT	25.5	AC-FT	NA	NA	POND VOL @ 8 FT	25.5	AC-FT	NA	
WEIR 1 ANGLE	25.0	DEGREES	NA	NA	WEIR 1 ANGLE	25.0	DEGREES	NA	
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0.0	FT	NA	
WEIR 2 ANGLE	140.0	DEGREES	NA	NA	WEIR 2 ANGLE	140.0	DEGREES	NA	
WEIR 2 HEIGHT	1.2	FT	NA	NA	WEIR 2 HEIGHT	1.2	FT	NA	
VOL. CRIT. TIME	3.0	AC-FT	4.3	AC-FT	VOL. CRIT. TIME	6.5	AC-FT	8	
PEAK FLOW	7.7	CFS	22	CFS	PEAK FLOW	17.8	CFS	35	
ROUTED DEPTH	2.0	FT	3.0	FT	ROUTED DEPTH	2.5	FT	3.0	
19:40:00	2.81	3.07	5	1766	19:40:00	3.62	5.69	5	2791
19:45:00	2.80	3.05	5	1756	19:45:00	3.60	5.62	5	2764
19:50:00	2.80	3.03	5	1746	19:50:00	3.58	5.55	5	2738
19:55:00	2.79	3.00	5	1737	19:55:00	3.56	5.48	5	2712
20:00:00	2.78	2.98	5	1727	20:00:00	3.54	5.42	5	2687
20:05:00	2.77	2.96	5	1718	20:05:00	3.52	5.35	5	2663
20:10:00	2.76	2.93	5	1708	20:10:00	3.50	5.29	5	2638
20:15:00	2.75	2.91	5	1698	20:15:00	3.49	5.23	5	2613
20:20:00	2.75	2.88	5	1688	20:20:00	3.47	5.16	5	2588
20:25:00	2.74	2.86	5	1678	20:25:00	3.45	5.10	5	2563
20:30:00	2.73	2.83	5	1668	20:30:00	3.43	5.03	5	2539
20:35:00	2.72	2.81	5	1658	20:35:00	3.41	4.97	5	2514
20:40:00	2.71	2.78	5	1648	20:40:00	3.39	4.91	5	2490
20:45:00	2.70	2.76	5	1638	20:45:00	3.38	4.85	5	2467
20:50:00	2.69	2.73	5	1628	20:50:00	3.36	4.79	5	2443
20:55:00	2.68	2.71	5	1618	20:55:00	3.34	4.73	5	2420
21:00:00	2.67	2.69	5	1608	21:00:00	3.32	4.67	5	2398
21:05:00	2.67	2.66	5	1598	21:05:00	3.31	4.61	5	2376
21:10:00	2.66	2.64	5	1588	21:10:00	3.29	4.56	5	2354
21:15:00	2.65	2.61	5	1579	21:15:00	3.27	4.50	5	2332
21:20:00	2.64	2.59	5	1569	21:20:00	3.26	4.45	5	2311
21:25:00	2.63	2.57	5	1560	21:25:00	3.24	4.40	5	2291
21:30:00	2.62	2.55	5	1551	21:30:00	3.22	4.34	5	2270
21:35:00	2.62	2.52	5	1542	21:35:00	3.21	4.29	5	2251
21:40:00	2.61	2.50	5	1533	21:40:00	3.19	4.24	5	2231
21:45:00	2.60	2.48	5	1524	21:45:00	3.18	4.19	5	2212
21:50:00	2.59	2.46	5	1515	21:50:00	3.16	4.15	5	2193
21:55:00	2.58	2.44	5	1506	21:55:00	3.15	4.10	5	2174
22:00:00	2.58	2.42	5	1498	22:00:00	3.13	4.05	5	2156
22:05:00	2.57	2.40	5	1489	22:05:00	3.12	4.01	5	2138
22:10:00	2.56	2.38	5	1481	22:10:00	3.11	3.96	5	2121
22:15:00	2.55	2.36	5	1473	22:15:00	3.09	3.92	5	2103
22:20:00	2.55	2.34	5	1465	22:20:00	3.08	3.88	5	2087
22:25:00	2.54	2.32	5	1457	22:25:00	3.07	3.84	5	2070
22:30:00	2.53	2.30	5	1449	22:30:00	3.05	3.79	5	2054
22:35:00	2.52	2.28	5	1441	22:35:00	3.04	3.75	5	2038
22:40:00	2.52	2.26	5	1433	22:40:00	3.03	3.71	5	2022
22:45:00	2.51	2.24	5	1426	22:45:00	3.01	3.67	5	2006
22:50:00	2.50	2.23	5	1418	22:50:00	3.00	3.64	5	1991
22:55:00	2.49	2.21	5	1411	22:55:00	2.99	3.60	5	1976

VERIFICATION OF FLOWS FOR THE 25-, 10-, AND 2-YEAR, 24-HOUR DESIGN STORMS
CRITICAL TIME

10-YEAR, 24-HOUR DESIGN STORM				25-YEAR, 24-HOUR DESIGN STORM				
	RUN	UNITS	GOALS	UNITS	RUN	UNITS	GOALS	UNITS
MODEL	VTFE1001	NA	NA	NA	MODEL	VTFE2501	NA	NA
POND VOL @ 8 FT	25.5	AC-FT	NA	NA	POND VOL @ 8 FT	25.5	AC-FT	NA
WEIR 1 ANGLE	25.0	DEGREES	NA	NA	WEIR 1 ANGLE	25.0	DEGREES	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0.0	FT	NA
WEIR 2 ANGLE	140.0	DEGREES	NA	NA	WEIR 2 ANGLE	140.0	DEGREES	NA
WEIR 2 HEIGHT	1.2	FT	NA	NA	WEIR 2 HEIGHT	1.2	FT	NA
VOL. CRIT. TIME	3.0	AC-FT	4.3	AC-FT	VOL. CRIT. TIME	6.5	AC-FT	8
PEAK FLOW	7.7	CFS	22	CFS	PEAK FLOW	17.8	CFS	35
ROUTED DEPTH	2.0	FT	3.0	FT	ROUTED DEPTH	2.5	FT	3.0
23:00:00	2.49	2.19	5	1404	23:00:00	2.98	3.56	5
23:05:00	2.48	2.17	5	1397	23:05:00	2.97	3.53	5
23:10:00	2.47	2.16	5	1389	23:10:00	2.95	3.49	5
23:15:00	2.47	2.14	5	1383	23:15:00	2.94	3.46	5
23:20:00	2.46	2.12	5	1376	23:20:00	2.93	3.42	5
23:25:00	2.45	2.11	5	1369	23:25:00	2.92	3.39	5
23:30:00	2.45	2.09	5	1362	23:30:00	2.91	3.36	5
23:35:00	2.44	2.08	5	1355	23:35:00	2.90	3.32	5
23:40:00	2.44	2.06	5	1349	23:40:00	2.89	3.29	5
23:45:00	2.43	2.05	5	1343	23:45:00	2.88	3.26	5
23:50:00	2.42	2.03	5	1336	23:50:00	2.87	3.23	5
23:55:00	2.42	2.02	5	1330	23:55:00	2.86	3.20	5
0:00:00	2.41	2.00	5	1324	0:00:00	2.85	3.17	5
0:05:00	2.41	1.99	5	1317	0:05:00	2.84	3.14	5
0:10:00	2.40	1.97	5	1311	0:10:00	2.83	3.11	5
0:15:00	2.39	1.96	5	1304	0:15:00	2.82	3.08	5
0:20:00	2.39	1.94	5	1298	0:20:00	2.80	3.05	5
0:25:00	2.38	1.92	5	1290	0:25:00	2.79	3.02	5
0:30:00	2.37	1.90	5	1282	0:30:00	2.78	2.98	5
0:35:00	2.36	1.88	5	1273	0:35:00	2.77	2.95	5
0:40:00	2.35	1.86	5	1264	0:40:00	2.76	2.91	5
0:45:00	2.34	1.84	5	1255	0:45:00	2.74	2.87	5
0:50:00	2.34	1.82	5	1246	0:50:00	2.73	2.83	5
0:55:00	2.33	1.80	5	1237	0:55:00	2.72	2.80	5
1:00:00	2.32	1.78	5	1228	1:00:00	2.70	2.76	5
1:05:00	2.31	1.75	5	1219	1:05:00	2.69	2.72	5
1:10:00	2.30	1.73	5	1209	1:10:00	2.67	2.68	5
1:15:00	2.29	1.71	5	1200	1:15:00	2.66	2.65	5
1:20:00	2.28	1.69	5	1191	1:20:00	2.65	2.61	5
1:25:00	2.27	1.67	5	1181	1:25:00	2.63	2.57	5
1:30:00	2.26	1.65	5	1172	1:30:00	2.62	2.54	5
1:35:00	2.25	1.63	5	1163	1:35:00	2.61	2.50	5
1:40:00	2.24	1.60	5	1154	1:40:00	2.59	2.47	5
1:45:00	2.23	1.58	5	1145	1:45:00	2.58	2.43	5
1:50:00	2.22	1.56	5	1136	1:50:00	2.57	2.40	5
1:55:00	2.21	1.54	5	1127	1:55:00	2.55	2.36	5
2:00:00	2.21	1.52	5	1118	2:00:00	2.54	2.33	5
2:05:00	2.20	1.50	5	1109	2:05:00	2.53	2.29	5
2:10:00	2.19	1.48	5	1101	2:10:00	2.52	2.26	5
2:15:00	2.18	1.46	5	1092	2:15:00	2.50	2.23	5

VERIFICATION OF FLOWS FOR THE 25-, 10-, AND 2-YEAR, 24-HOUR DESIGN STORMS
CRITICAL TIME

10-YEAR, 24-HOUR DESIGN STORM				25-YEAR, 24-HOUR DESIGN STORM				
	RUN	UNITS	GOALS		RUN	UNITS	GOALS	UNITS
MODEL	VTFE1001	NA	NA	NA	MODEL	VTFE2501	NA	NA
POND VOL @ 8 FT	25.5	AC-FT	NA	NA	POND VOL @ 8 FT	25.5	AC-FT	NA
WEIR 1 ANGLE	25.0	DEGREES	NA	NA	WEIR 1 ANGLE	25.0	DEGREES	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0.0	FT	NA
WEIR 2 ANGLE	140.0	DEGREES	NA	NA	WEIR 2 ANGLE	140.0	DEGREES	NA
WEIR 2 HEIGHT	1.2	FT	NA	NA	WEIR 2 HEIGHT	1.2	FT	NA
VOL. CRIT. TIME	3.0	AC-FT	4.3	AC-FT	VOL. CRIT. TIME	6.5	AC-FT	8
PEAK FLOW	7.7	CFS	22	CFS	PEAK FLOW	17.8	CFS	35
ROUTED DEPTH	2.0	FT	3.0	FT	ROUTED DEPTH	2.5	FT	3.0
2:20:00	2.17	1.44	5	1084	2:20:00	2.49	2.20	5
2:25:00	2.16	1.43	5	1076	2:25:00	2.48	2.17	5
2:30:00	2.15	1.41	5	1067	2:30:00	2.47	2.14	5
2:35:00	2.14	1.39	5	1059	2:35:00	2.45	2.11	5
2:40:00	2.13	1.37	5	1051	2:40:00	2.44	2.08	5
2:45:00	2.13	1.35	5	1043	2:45:00	2.43	2.05	5
2:50:00	2.12	1.33	5	1035	2:50:00	2.42	2.02	5
2:55:00	2.11	1.32	5	1027	2:55:00	2.41	1.99	5
3:00:00	2.10	1.30	5	1020	3:00:00	2.40	1.96	5
3:05:00	2.09	1.28	5	1012	3:05:00	2.38	1.93	5
3:10:00	2.08	1.27	5	1004	3:10:00	2.37	1.91	5
3:15:00	2.08	1.25	5	997	3:15:00	2.36	1.88	5
3:20:00	2.07	1.23	5	990	3:20:00	2.35	1.85	5
3:25:00	2.06	1.22	5	983	3:25:00	2.34	1.83	5
3:30:00	2.05	1.20	5	975	3:30:00	2.33	1.80	5
3:35:00	2.04	1.19	5	968	3:35:00	2.32	1.78	5
3:40:00	2.04	1.17	5	961	3:40:00	2.31	1.75	5
3:45:00	2.03	1.15	5	954	3:45:00	2.30	1.73	5
3:50:00	2.02	1.14	5	948	3:50:00	2.29	1.70	5
3:55:00	2.01	1.12	5	941	3:55:00	2.28	1.68	5
4:00:00	2.00	1.11	5	934	4:00:00	2.27	1.66	5
4:05:00	2.00	1.10	5	928	4:05:00	2.26	1.63	5
4:10:00	1.99	1.08	5	921	4:10:00	2.25	1.61	5
4:15:00	1.98	1.07	5	915	4:15:00	2.24	1.59	5
4:20:00	1.98	1.05	5	908	4:20:00	2.23	1.57	5
4:25:00	1.97	1.04	5	902	4:25:00	2.22	1.55	5
4:30:00	1.96	1.03	5	896	4:30:00	2.21	1.53	5
4:35:00	1.95	1.01	5	890	4:35:00	2.20	1.51	5
4:40:00	1.95	1.00	5	884	4:40:00	2.19	1.49	5
4:45:00	1.94	0.99	5	878	4:45:00	2.18	1.47	5
4:50:00	1.93	0.98	5	872	4:50:00	2.17	1.45	5
4:55:00	1.93	0.96	5	867	4:55:00	2.16	1.43	5
5:00:00	1.92	0.95	5	861	5:00:00	2.15	1.41	5
5:05:00	1.91	0.94	5	855	5:05:00	2.14	1.39	5
5:10:00	1.91	0.93	5	850	5:10:00	2.13	1.37	5
5:15:00	1.90	0.92	5	844	5:15:00	2.13	1.35	5
5:20:00	1.89	0.90	5	839	5:20:00	2.12	1.33	5
5:25:00	1.89	0.89	5	833	5:25:00	2.11	1.32	5
5:30:00	1.88	0.88	5	828	5:30:00	2.10	1.30	5
5:35:00	1.87	0.87	5	823	5:35:00	2.09	1.28	5

VERIFICATION OF FLOWS FOR THE 25-, 10-, AND 2-YEAR, 24-HOUR DESIGN STORMS
 CRITICAL TIME

10-YEAR, 24-HOUR DESIGN STORM				25-YEAR, 24-HOUR DESIGN STORM				
	RUN	UNITS	GOALS	UNITS	RUN	UNITS	GOALS	UNITS
MODEL	VTFE1001	NA	NA	NA	MODEL	VTFE2501	NA	NA
POND VOL @ 8 FT	25.5	AC-FT	NA	NA	POND VOL @ 8 FT	25.5	AC-FT	NA
WEIR 1 ANGLE	25.0	DEGREES	NA	NA	WEIR 1 ANGLE	25.0	DEGREES	NA
WEIR 1 HEIGHT	0.0	FT	NA	NA	WEIR 1 HEIGHT	0.0	FT	NA
WEIR 2 ANGLE	140.0	DEGREES	NA	NA	WEIR 2 ANGLE	140.0	DEGREES	NA
WEIR 2 HEIGHT	1.2	FT	NA	NA	WEIR 2 HEIGHT	1.2	FT	NA
VOL. CRIT. TIME	3.0	AC-FT	4.3	AC-FT	VOL. CRIT. TIME	6.5	AC-FT	8
PEAK FLOW	7.7	CFS	22	CFS	PEAK FLOW	17.8	CFS	35
ROUTED DEPTH	2.0	FT	3.0	FT	ROUTED DEPTH	2.5	FT	3.0
5:40:00	1.87	0.86	5	818	5:40:00	2.08	1.27	5
5:45:00	1.86	0.85	5	812	5:45:00	2.08	1.25	5
5:50:00	1.85	0.84	5	807	5:50:00	2.07	1.23	5
5:55:00	1.85	0.83	5	803	5:55:00	2.06	1.22	5
6:00:00	1.84	0.82	5	798	6:00:00	2.05	1.20	5
6:05:00	1.84	0.81	5	793	6:05:00	2.04	1.18	5
6:10:00	1.83	0.80	5	788	6:10:00	2.04	1.17	5
6:15:00	1.82	0.79	5	783	6:15:00	2.03	1.15	5
6:20:00	1.82	0.78	5	779	6:20:00	2.02	1.14	5
6:25:00	1.81	0.77	5	774	6:25:00	2.01	1.12	5
6:30:00	1.81	0.76	5	769	6:30:00	2.00	1.11	5
6:35:00	1.80	0.75	5	764	6:35:00	2.00	1.10	5
6:40:00	1.79	0.74	5	760	6:40:00	1.99	1.08	5
6:45:00	1.79	0.73	5	756	6:45:00	1.98	1.07	5
6:50:00	1.78	0.72	5	751	6:50:00	1.98	1.05	5
6:55:00	1.78	0.71	5	747	6:55:00	1.97	1.04	5
7:00:00	1.77	0.70	5	743	7:00:00	1.96	1.03	5
7:05:00	1.77	0.69	5	738	7:05:00	1.95	1.01	5
7:10:00	1.76	0.69	5	734	7:10:00	1.95	1.00	5
7:15:00	1.76	0.68	5	730	7:15:00	1.94	0.99	5
7:20:00	1.75	0.67	5	726	7:20:00	1.93	0.98	5
7:25:00	1.74	0.66	5	722	7:25:00	1.93	0.96	5
7:30:00	1.74	0.65	5	717	7:30:00	1.92	0.95	5
7:35:00	1.73	0.64	5	713	7:35:00	1.91	0.94	5
7:40:00	1.73	0.64	5	710	7:40:00	1.91	0.93	5
7:45:00	1.72	0.63	5	706	7:45:00	1.90	0.92	5
7:50:00	1.72	0.62	5	702	7:50:00	1.89	0.90	5
7:55:00	1.71	0.61	5	698	7:55:00	1.89	0.89	5
8:00:00	1.71	0.61	5	694	8:00:00	1.88	0.88	5
								828



Appendix C

Pre- and Post-Development Flows Over Critical Time, No Controls

